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A "Handbook" of Today's Approved Treatments

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(Continuing the Bulletin of the Association of American Medical Colleges)

JOURNAL
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Teaching of Obstetrics to Undergraduate Medical Students*

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Within the last decade, more attention has been focused on maternal welfare in this country than in any period of its history. This has resulted from a comparison of our maternal mortality figures with those of other countries (unfair as the comparison may be), from a demand by a more or less enlightened public for better service, and from the natural desire of the leaders of obstetric thought constantly to improve the results obtained by applying modern methods of obstetric care to as large a percentage of the population as possible. Many metropolitan areas have special committees studying the causes of maternal mortality and making provision, through education and recommendations, for improving the practice of obstetrics in their communities.

Each state health department has been entrusted with the organization and execution of a plan of education along obstetric lines for physicians, nurses and lay groups. These programs are provocative of discussion and understanding of the problems by the laity which results in demands for better obstetric service from the medical men of the country who are the medical students of yesteryear.

The teaching of obstetrics is, therefore, one of the most important duties of the clinical faculty of a medical school. This is true for various reasons. First, because the public has been accustomed to entrusting obstetric cases to the younger members of the profession who are not too busy with general practice to devote the necessary time to prenatal care and labor. Secondly, because friends of a young doctor more frequently seek his counsel in obstetric cases than for other conditions with which he may be confronted, makes a better impression on the patient, and so attracts other obstetric patients and soon establishes an obstetric reputation.

For these and other reasons obstetrics is the foundation on which many, if not most, general practices are built. Since it is axiomatic that the prime function of medical schools is to teach men to enter into the practice of medicine, no pains should be spared to see to it that they graduate with the best possible practical grasp of the fundamentals of this branch of clinical medicine.

*Read at the Fifty-third Annual Meeting of the Association of American Medical Colleges, held in Louisville, Kentucky, October 26-28, 1942.

The primary function of a teacher is to inspire the student with a desire to know the subject being presented. The task of the educational institution is to find inspiring men to do the teaching, and to provide them with proper equipment to accomplish this purpose.

In the days of the proprietary medical school, the faculty was organized usually by one or more dominant characters, usually surgeons, who dictated the policy of the institutions, and derived the principal benefits from the fees collected and the reference of surgical patients from the graduates of these institutions. They had as their associates in the medical departments men usually of less forceful character who did no operative work but who had

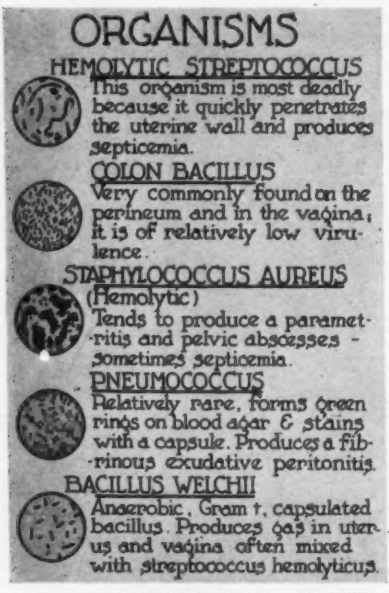
ORGANISMS
HEMOLYTIC STREPTOCOCCUS
This organism is most deadly because it quickly penetrates the uterine wall and produces septicemia.
COLON BACILLUS
Very commonly found on the perineum and in the vagina; it is of relatively low virulence.
STAPHYLOCOCCUS AUREUS
(Hemolytic)
Tends to produce a parametritis and pelvic abscesses - sometimes septicemia.
PNEUMOCOCCUS
Relatively rare, forms green rings on blood agar & stains with a capsule. Produces a fibrinous exudative peritonitis.
BACILLUS WELCHII
Anaerobic, Gram +, capsulated bacillus. Produces gas in uterus and vagina often mixed with streptococcus hemolyticus.

FIG. 1. — COMBINATION OF LETTERED CHART WITH DIAGRAMMATIC DRAWINGS OF PLATE CULTURES.

large practices, and could be relied on to give patients good preoperative and postoperative care. These men started the school and preempted the best wards and clinical spaces in the hospitals. As an after thought, and because it was necessary to have someone to cover the situation, they selected as head of the obstetric department someone who lacked the nerve to do surgery and the training and wisdom to handle medical problems, but who was innocuous otherwise and had a good fund of risqué stories to keep the boys satisfied. Because of these qualities, the incumbents were satisfied with practically no equipment for teaching and were given what was left over in the hospitals to carry on their work if, indeed, it was considered necessary for them to work in a hospital at all.

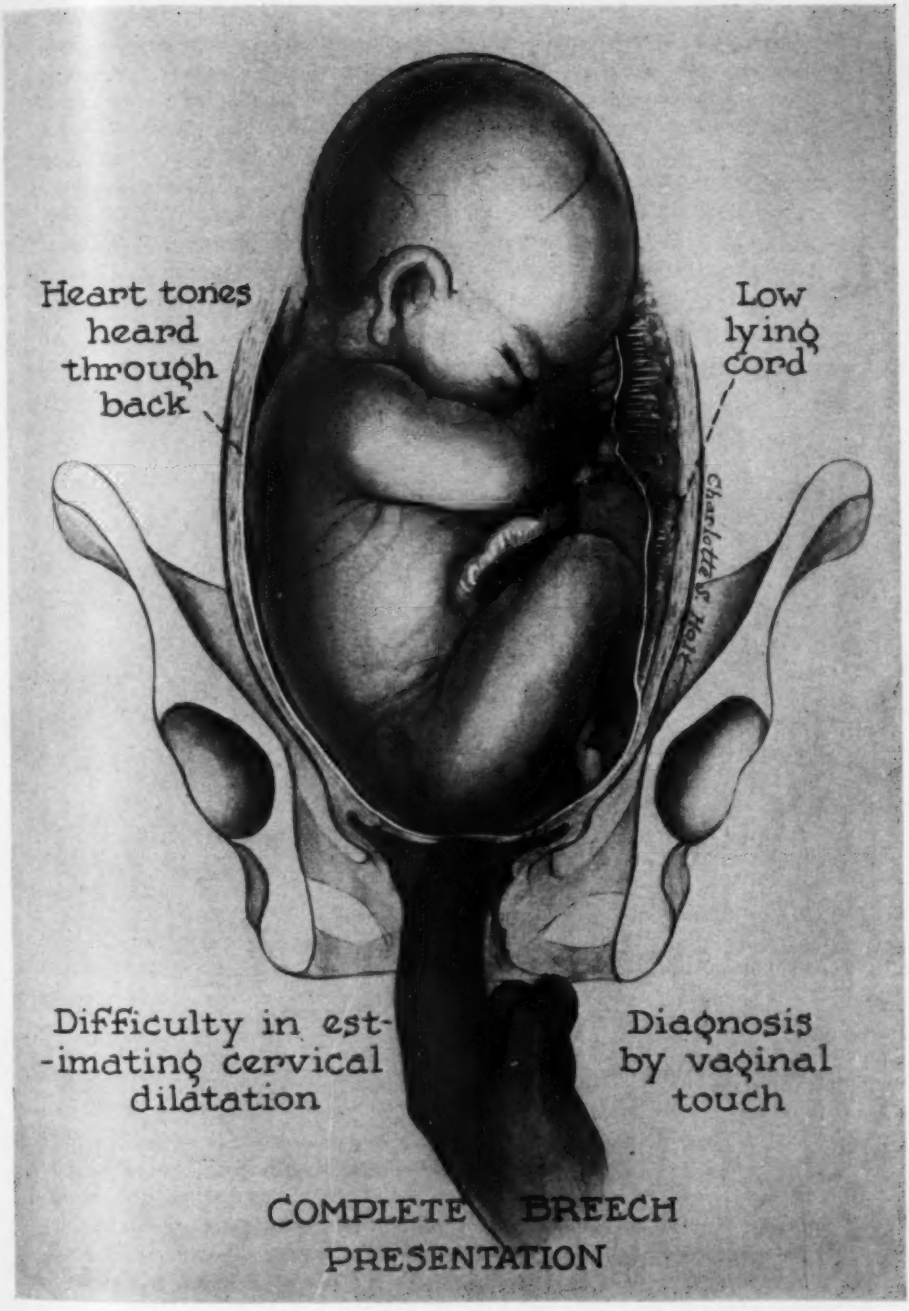

FIG. 2.—EXAMPLE OF PHOTOGRAPHIC REPRODUCTIONS OF WATER COLOR DRAWINGS, HUNG IN THE OUTPATIENT DISPENSARY FOR USE BY STUDENT WHILE EXAMINING PATIENTS.

With the development of the modern medical school came a group of men who were not satisfied with the old arrangements and who took the position that obstetrics must be given the same consideration in the curriculum as the departments of surgery or medicine. Special hospitals began to appear devoted to obstetrics exclusively or associated with gynecology. These were staffed by men capable both as teachers and clinicians. They handled surgical complications as skillfully as did the general surgeon, were as interested in cardiac, pulmonary, renal disease and endocrinopathies in their patients as were their colleagues, the internists, in the nonpregnant patients. The results soon earned for them a respected position in the community and recognition as equals by the

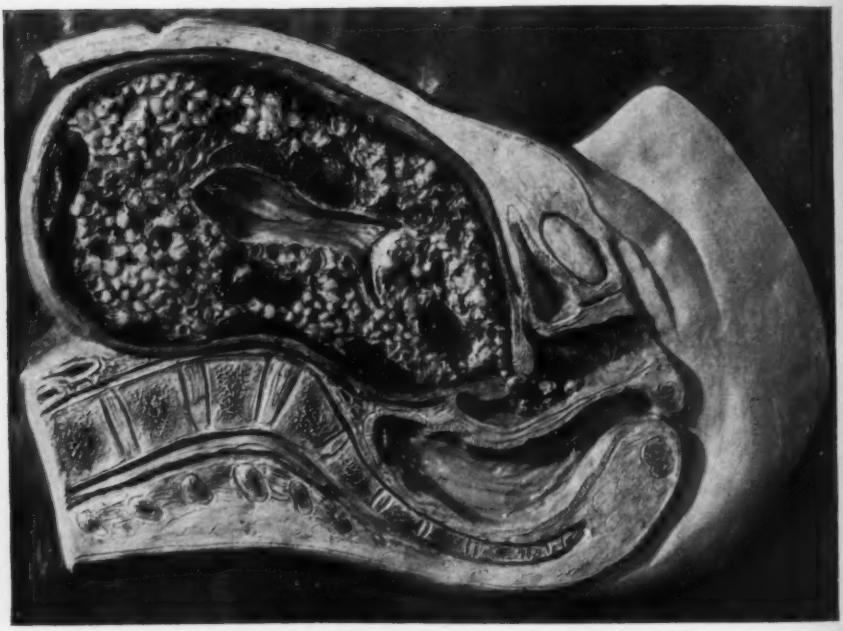

FIG. 3.—UNIQUE ILLUSTRATION OF HYDATID MOLE IN SITU SCULPTURED IN LOW RELIEF, TO SCALE, AND IN COLOR, DRAMATIZES THE DANGERS OF THIS CONDITION.

surgeons and internists. This has made the specialty of obstetrics attractive to many excellent students entering this field for extensive training before entering practice.

The head of an obstetric department should be, first of all, an expert clinician. He must be able to approach an obstetric problem with a full knowledge, based on experience, of all the factors entering into the equation. He must be able to evaluate correctly the various signs and symptoms, and arrive at a correct conclusion, which will be disclosed by the outcome of the case, in order to retain the confidence and respect of his students and associates. This ability

cannot be gained by any amount of reading or work in a chemical or physiological laboratory, and no number of Phi Beta Kappa, Alpha Omega Alpha or Sigma Xi keys can be substituted. There is only one way that this knowledge can be obtained, namely, in the wards and delivery rooms, watching not as a disinterested spectator or one with an academic interest in the phenomena displayed, but as a disciple of the Great Master entrusted with the responsibility of assisting in the miracle of human reproduction and responsible for the safety of two human lives, both of which, in all cases, are in serious jeopardy until sometime after the completion of labor.

In addition, he must have an interest in and some ability as a research worker in order to stimulate and foster such talent in the members of the department, and to discourage a lot of pseudoscientific piddling which in many institutions

FIG. 4.—HYDROCAL MODEL TO SCALE SHOWING INSTRUMENTAL DELIVERY OF FULL TERM FETUS, PAINTED REALISTICALLY IN OILS.

masquerades as research. Not only is it necessary for the head of the department to have these requisites, but there should be also a sincere interest in the welfare of the patient as a person, not merely as a case. Association with and observation of the work of such a teacher will prepare the student for the personal contact with the families of his practice, which give them an excellent opportunity to judge his qualifications as a man. This is the real strength of the medical profession, and it gains for the physician the position of honor and respect in the eyes of his fellow men. This human interest cannot be counterfeit. The student is quick to detect sham in this connection. The future of the practice of medicine is largely dependent on this appraisal by the general public.

May I add, parenthetically, that the public is rapidly becoming aware of the true state of affairs as regards the handling of obstetric cases. Maternal mortality is being studied carefully in the various states and it is obvious that a tremendous number of lives have been sacrificed in the past to poor obstetric practice. No longer is the death of a young mother viewed with resignation as an act of divine providence. The real reasons are sought out and the blame, if any, ascribed to the proper source. If it can be shown that a given institution is graduating men improperly prepared to accept the responsibility of caring for obstetric cases properly, it will not be long before the men responsible for the teaching in such institutions will be called on to explain why such lack of preparation was tolerated in their institution.

These questions have ceased to be of academic interest only. The responsibility lies largely on you as a group to see to it that the institution which you represent has furnished the proper facilities and personnel to the department of obstetrics for the proper conduct of obstetric instruction, and that men not qualified to practice obstetrics be not granted medical degrees. If you fail in these respects, it is my opinion that an enlightened public will demand an explanation, which, if not satisfactory, will result in new leadership in our medical schools.

Around this central figure must be grouped a number of men with varying talents and of varying degrees of professional ability. Some of the personnel of the department may be almost exclusively practical clinicians, capable of assuming their share of the clinical teaching and operative work and of substituting for the head of the department in his absence. Also, there should be men who are devoting much of their time to research, especially in associated subjects, such as physiology, chemistry, bacteriology and pathology.

Under these two groups and working with them daily are the residents and interns who absorb much of their instruction from the clinical conferences and contacts on research problems. The student learns much from representatives from all these groups. Because of the intimate contact in wards and delivery rooms, much of his practical knowledge is derived from the residents and interns. These men should be selected for appointment in the department with this function clearly in mind as an important qualification. Much harm can be done in a teaching service by appointing the wrong type of man to the residency. The position calls for tact, self sacrifice, endurance, cool headedness in emergency, judgment, self reliance, willingness to seek and accept advice, and cheerfulness, together with skill, knowledge of fundamentals of obstetrics, studiousness and intellectual honesty. It is from timber of this sort that obstetric departments should be built, and I can assure you that men with all these qualifications cannot be found easily. Not one in fifty will be found to measure up to specifications, to start with, but with proper training and guidance, and association with men who have come up the hard way, the proper development of a considerable number of the younger members of the department is practically assured.

The nursing personnel of the department should be closely integrated with the teaching program. They should be made to feel that their part of the care

of patients is under continuous scrutiny by inquiring minds of students, and that they have a responsibility to see that their part of the care of patients is carried out carefully. A good nursing supervisor can give the students much useful information about the care of newborn babies, and can, by clinical demonstration, teach the giving of enemas, passing of a stomach tube for gavage feeding, care of the cord, and circumcision dressing.

The student must be instructed about the care of the breasts after delivery, how to get the baby to take the breast. The pumping and storing of breast milk, and drying up the breast when lactation is not desirable. It is my opinion that instruction along these lines should be the function of the obstetric staff, since the care of the newborn baby is practically always delegated to the obstetrician in home deliveries, and in the majority of hospital services. There has been a tendency in recent years, especially in metropolitan areas, for the obstetricians to dodge this responsibility, and to turn the baby over to a pediatrician as soon as it is born. I am sure that this is a mistake—for several reasons. In the first place, only the obstetrician knows all that happened to the baby during labor. He is present to combat unfavorable symptoms in the critical first hours after labor. Having had the mother as a patient, he is in better position to encourage breast feeding than a stranger on the case. Too often the pediatrician chooses to recommend artificial feeding as the easiest way out for himself, since he has had practically no experience in handling women patients and getting their cooperation on a problem involving themselves.

Pediatricians as a group necessarily are in daily contact with various acute infections and contagious diseases, and by all the rules of hygiene and sanitation should be excluded from the obstetric service in general, and from the nursery in particular. The danger of initiating an epidemic of puerperal infection among the mothers or of serious infections among the infants is real and should not be ignored. When infections develop among the newborn babies in a obstetric ward, these babies should immediately be excluded from the obstetric service and from contact with the personnel of the obstetric service, from the chief of the service to the youngest intern and even the scrub maids. This means isolation, if possible on a separate floor. Serious feeding problems should probably best be handled by transfer to the pediatrics division.

Delivery room training should not be limited to the farce of having to sit on a bench behind a glass partition and watch an intern deliver the baby. Two students should be assigned to each case in labor and they should be given full time to study the labor and delivery from start to finish. They should take and record observations on the clinical progress of the case. During parturition one should scrub up and assist with delivery of all primiparae, and deliver most multiparae, if the pregnancy and labor are uncomplicated. The other student is detailed to give the anesthetic, under supervision.

These men should never be sent out into the home alone on obstetric cases, as was done in some of our best departments of obstetrics until recently, or be left in the delivery room in charge of an intern or nurse for advice and instruction. A second or third year resident or an attending man should be present and

participate actively in the instruction in all cases, and deliver all complicated cases. In this way, the intern and student get adequate training to permit them to deliver normal cases without giving them such major duties that they get a false idea of the necessity or advisability of obstetric operative work.

For this purpose I advocate the use of drop ether because of its high margin of safety, nonexplosiveness and the simplicity of the equipment necessary for its proper administration. I do not believe that the more complicated forms of anesthesia and analgesia should be shown or taught the student, since it is confusing to him and, in many instances, it is dangerous to apply these procedures without the services of a specially trained anesthetist, and the continued attendance of specially trained nurses if any form of twilight sleep is used. Such refinements are not available for the general practitioner of medicine except in a very small percentage of his cases; furthermore, there are inherent dangers not appreciable by the student who sees, at best, only relatively few cases while on the obstetric service.

Ward walks are particularly valuable in the teaching of obstetrics since in the puerperium the majority of patients are not acutely ill, and, therefore, can be questioned and examined physically without undue discomfort. The student can be shown lactation, stimulation of flow of breast milk by the hand pump, electric pump, hand massage and the effects of various foods and drinks on breast milk supply. The involution of the puerperal uterus can be followed daily, and infections, if they occur, can be observed accurately, the type determined and the effect of treatment studied. Recuperation from hemorrhage and shock can be followed and different remedies compared. The student should keep his own record of the cases assigned to him and be ready to stand a quiz on them at any time.

It is especially important, if possible, to provide an opportunity for the students to see at first hand a considerable number of infected abortions and patients with puerperal sepsis of varying types. Only in this way can the seriousness of these complications be impressed on him. This implies access to the wards of a large charity hospital such as Belleview, Cook County or the Charité. Intensive study of smaller numbers of cases may be substituted but is not so satisfactory.

The manikin course is especially valuable when given to small groups of ten or less by a clinician of considerable experience in operative obstetrics. In this course various complicated situations are hypothecated, and the students are taught to reason out the proper clinical procedure to apply. Obstetric operative judgment is thus stimulated and many clinical pitfalls may be pointed out. The student, under careful supervision, is taught to do on the manikin all obstetric operations under the direct supervision and criticism of a competent obstetrician. While the student cannot become proficient as an operator in the few hours available, he can, at least, gain some knowledge regarding the principles of the management of operative cases. This is particularly important because in the average obstetric clinic only about 5 per cent of the cases present themselves with clear cut indications for operative intervention. As a result most

obstetric clinics are markedly deficient in operative material. For this reason an effort should be made by the faculty and others interested in the school to direct as many pathologic cases as possible to the obstetric department that they may be used for student training as well as to provide sufficient operative experience for the residents and for the interns.

In some institutions, the indications for operation are stretched in order to provide this operative training. This is a serious mistake since it encourages unnecessary and meddlesome intervention in normal cases, whereas, the first and fundamental lesson to be learned by the student is that most women will deliver quite normally if given sufficient time and intelligent supportive treatment, and that operative delivery is the second best method no matter how clever the operator may be or what the immediate results obtained by the operative procedures. The student must be made to realize that he will never, in all probability, have sufficient operative material to develop very great operative dexterity in obstetrics while he is engaged in general practice.

The laboratory course in obstetrics can well be combined with that in gynecology. Early nidation, the development of the placenta, ectopic pregnancy, effects of toxemias on parenchymatous organs, the lactating mammary gland, with and without infection, can all be studied profitably in gross and microscopic specimens. Fetal diseases and anomalies, obstetric anemias, ruptured uterus and ablatio placenta may all be studied in the laboratory, but with clinical interpretation, and with case history examples.

We have ten men assigned to one teacher who examines with them a specially prepared and issued collection of slides from which careful drawings are made and discussed. The course is given by one of the older men in the department, assisted by two or three of the younger men, especially those who may be reviewing pathology in preparation for the American Board of Obstetrics, in obstetrics and gynecology. A small amount of clinical bacteriology is incorporated in this course.

Quiz exercises are a necessary evil. They have become pedagogically unpopular with students and faculty. There is no royal road to learning, and nothing will replace a good snappy quiz by a live wire quiz master on a lesson well prepared by an interested class. The orderly review of a good text has no equal for driving home certain necessary fundamentals obtainable in no other way. I may be accused of "horse and buggy" proclivities in this connection, but I assure you that I am prepared to defend this position.

Lecture demonstration of interesting clinical, complicated, cases to the whole senior class by the head of the department, once a week for a one hour conference, is valuable from the standpoint of permitting the whole class to see nearly all of the major clinical pathology occurring in the department throughout the year. While smaller classes have become the vogue in medical schools, and for the most part rightfully so, I still believe that if properly conducted, by an inspiring teacher, that the big clinic offers a dramatic touch which is stimulating and valuable for the average student, if not used too freely. These

clinical presentations may be supplemented by lantern slide demonstrations when suitable slides are available.

Recently, we introduced a course which is aimed at teaching the senior students the fundamentals of obstetric anatomy. For this purpose, sections of the class meet in a laboratory room and are quizzed on the anatomy, gross and microscopic, of the uterus. At the end of the quiz period, which consumes about forty minutes, the students are asked to draw the uterus to scale, showing its connections with other pelvic organs, its circulation, nerve supply and relationship to the bladder and rectum and other pelvic organs. The drawings are not marked on their artistic merit but on the information which they display. A second day is spent on the anatomy of the tube and ovary. A third day is spent on the placenta and fetus and so on until the eighth day which is spent in the dissecting laboratory going over cadaver dissections being made by freshmen. A double purpose is served by this. In the first place, the senior students see how much they have forgotten, and how much they never learned about the subject, and secondly, the freshmen begin to see that there is a practical purpose and a use for the acquisition of anatomical facts. Again, the stimulation of interest in the mind of the freshman in his work makes for a better senior and eventually practitioner. Another factor that has been noted, the seniors do not relish having freshmen see how little they know—which has its own stimulative value.

Another innovation is a two hour physiological ward conference into which are brought normal pregnant and puerperal women who are used for demonstration and lecture on such subjects as uterine growth, fetal heart tones, placentation, the third stage of labor, lactation and the artificial stimulation of milk flow. After a thirty to forty minute discussion of these subjects with the group, the students are sent into the ward to check the findings on the patients pre or postnatal who illustrate the points brought out in conference. These two courses seem to have stimulated great interest in the students. They are quite informal and often result in questions being raised that may embarrass the clinician to produce the correct answer off hand.

Acting on the assumption that visual education is destined to play a most important role in future medical education, we have illustrated most of the obstetric subjects which the student will encounter in practice. We have made a number of anatomical drawings to scale of obstetric subjects. A medical artist, who works under the supervision of the head of the department, is on call for work in the delivery or operating rooms. These drawings can be made up into exhibits for postgraduate teaching at conventions of doctors or nurses, or can be hung in the department for continuous observation and study by undergraduates. They are all original drawings made with the purpose of maximum teaching value. It is important to have these hung where they can be used by the students to the best advantage while working up a clinical case either in the hospital or in the outpatient department. Their production takes time and much thoughtful consideration, self criticism and revision by clinician and artist. It is suprising how deficient the average medical school is in such material.

Recently, we supplemented the drawings with bas relief sculpture which, because of the three dimensional factor, makes the material much more realistic and valuable. The models are sculptured to scale in clay from which a rubber negative is made, and a positive of artificial marble, painted realistically in oil, is the final product. Where necessary, actual instruments have been incorporated in the models to increase the realism. These models, together with associated drawings and charts, are mounted in special illuminated exhibition cabinets in groups covering various subjects, such as ectopic pregnancy, Caesarean section, abortion, puerperal sepsis and the premature infant. Both drawings and models are photographed and lantern slides made for use in undergraduate and post-graduate lectures at the school and at county medical society meetings throughout the state. A duplicate set is made and kept in the educational office of the Illinois State Medical Society where they can be obtained, without charge, by any member of the society who wishes to give a talk on an obstetric subject. We find them a far more effective teaching medium than motion pictures.

Motion pictures have been tried, but have been found to be impractical for the teaching of undergraduates. Considerable time is spent in most cases with nonessential detail, while the important part of the picture goes by the student so fast that relatively little is remembered. There is a certain psychology of entertainment in connection with the motion picture, in our experience, which seems to mitigate against its use as a medium for serious teaching. Their chief use is to illustrate some relatively rare operative procedure that otherwise would not be seen during the course, or to illustrate some rare complication or deformity which can be photographed and preserved for teaching. In most cases however, we would prefer using the movies to educate the artist to the point of being able to make a realistic reproduction of the important points seen in the movies.

SUMMARY

The teaching of obstetrics, then, depends on finding physicians who know obstetrics, and can and will teach it in such a way as to inspire medical students to want to know the subject. These men must be furnished proper facilities for the carrying out of their plans, both as regards hospital facilities, clinical material and research opportunities.

A department is built around a Chief who is first of all an accomplished clinician with some research ability and training. He must have both clinically minded and research minded men working with him.

The nursing service must be an integrate part of the teaching setup, and should be given that part of the teaching to do which falls in the nursing field.

The normal newborn should be cared for by the obstetrician; the abnormal or infected cases go on the pediatric service. No mixture of personnel of the two departments is advisable or desirable.

Delivery training should be practical and always under adequate instruction. Simple anesthesia technique, easily carried out in the home, with the minimum of assistance, should be taught.

Ward walks, quizzes, laboratory course and manikin are all essentials of a well rounded course. A lecture conference course for the whole class to utilize to the maximum the current clinical pathology is advisable.

Special courses in obstetric anatomy and physiology are being tried with success and will be continued.

Visual education is stressed as an important means of stimulating interest in and understanding of obstetric problems. Drawings, lantern slides, sculpture and movies should all contribute to this end.

Since the public and the Government have recently evinced serious interest in maternal welfare, it is my opinion that we who are responsible for the teaching of obstetrics are very much on the defensive. If it becomes evident that we are doing not just a good job but the best that can be done, it may well be that we will be relieved of the responsibility entirely. Institutions depending on the public for support, as all institutions in the last analysis do, have a responsibility to that public which they will do well to recognize, to the end, that the money spent on obstetric education of the doctors of the nation pays the maximum dividends in service to the mothers and babies on which the future welfare of this commonwealth depends in large measure.

Medical Pioneers in Kentucky*

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Dean Moore, I think with malice aforethought, has asked one of the oldest members of his faculty in point of service to discuss some of the attainments of our worthies of the past.

I cannot claim acquaintance with any of them, but I feel myself fortunate in knowing something of their work. I also feel myself very fortunate in having lived through a remarkable transition period in medicine, having been reared professionally in the waning shadow of one school of thought, that founded on clinical observation alone, and seeing in this golden age the fruition of that built on accurate scientific knowledge.

The actions of those about whom I am to speak have carved their indelible imprint on the scroll of time, and need no commendatory words of mine to enhance their value. Their contributions live in daily action and, for the most part, have been recorded in medical literature. Working without the laboratory and its accompanying refinements in making diagnoses, they developed a compensatory acumen in correctly assessing the value of the symptoms. To them, surgery was the application of mechanical principles for the solution of pathological problems. Medicine was the cure of disease and the amelioration of symptoms by the use of medicaments.

They enjoyed those qualities for which Americans are noted the world over, independence of thought, ingenuity of invention and enthusiasm of purpose, combined with discernment to perceive, courage to undertake, and patience to carry through.

Their visions of medicine and their attainments in that realm were but the promise of what it has become, their dreams the seedlings of realities that have materialized. They fulfilled, in greatest measure, the unwritten law, that he who enjoys the prestige of a profession should leave that profession greater than he found it.

The early development of medicine in Kentucky centered around two towering, dominant personalities—Ephraim McDowell and Benjamin Dudley. Both were Virginians by birth, and came with their families to Kentucky shortly after the admission of the state to the Union in 1792. Both had enjoyed the best academic training obtainable and, according to the custom of the times, entered on the study of medicine in the offices of their preceptors.

McDowell attended the University of Edinburgh in 1793-1794 and, returning to Kentucky in 1795, entered practice in Danville. The degree of Doctor of Medicine was not conferred on him until, unsolicited on his part, the University of Maryland, gave him an honorary degree in 1823.

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*Address delivered at the Fifty-third Annual Meeting of the Association of American Medical Colleges, held in Louisville, Kentucky, October 26-28, 1942.

The Medical Society of Philadelphia, at that time the most distinguished society of its kind in the country, in 1807 sent him its diploma attesting the fact that he attained national distinction before he prosecuted the work that was to make him world famous. Dr. McDowell, for years, was almost the sole occupant of the field of surgery in the Ohio Valley, performing practically all the operations for miles around. His contributions to literature were few, consequently, there is no accurate knowledge as to the extent and variety of his surgical activities. He is known to have operated successfully for stone thirty-two times and that he paid much attention to hernia.

His epoch making ovariotomy was performed in December, 1809, 14 years after his entry into practice, and between that time and his death in 1830, he is known to have operated for thirteen cases of ovarian tumor, eight of which were successful, four resulted in death, and in one the operation was abandoned because of adhesions.

He published his first paper in October, 1816, in the Philadelphia Eclectic Repertory and Analytical Review, one of the two journals published in this country at that time, under the title, "Three Cases of Extirpation of Diseased Ovaries." A second report was made in 1892, in which two additional cases were recorded. These two papers are the only writings extant of this illustrious pioneer.

The delay in the publication of his reports, the paucity of medical literature, the absence of facilities for rapid communication—the trip from Danville to Philadelphia at that time required six weeks—explains the incredulity of his contemporaries and the deferment of the honor which a grateful profession now accords him.

It is difficult for the modern physician to conceive the hardihood and courage, the insight and vision of this pioneer, who, without precedent to guide him, and without the knowledge of anesthesia, and the protection of asepsis to aid him, invaded the sacred precincts of the abdomen, a procedure now so readily accomplished as to lead Dr. W. W. Keene to refer to it as the surgeon's playground.

Dr. David Yandell, in contrasting the fame of the statesmen, the orators, and the military men of Kentucky, said:

"Chief of these is he who bears the mark of our guild, Ephraim McDowell. The labors of the statesman will give away to the pitiless logic of events; the voice of the orator will grow fainter in the coming ages and the deeds of the soldier will live only in the library of the student of military campaigns; while the attainment of the village surgeon like the widening waves of the inviolate sea will reach the uttermost shores of time hailed by all civilization as having lessened the suffering and lengthened the span of human life."

In view of the marvelous development of abdominal surgery today, for which the exploit of McDowell paved the way, I think this beautiful tribute of Dr. Yandell is even more applicable now than at the time of its utterance in 1875.

The most eminent follower of McDowell was Dr. Joshua Bradford who, at the time of his death in 1871, had accumulated a series of thirty operations for

ovarian tumor, with but three deaths, a mortality of 10 per cent. When one realizes that this was accomplished before the days of asepsis, it will stand as a record unparalleled in all the world before the advent of modern surgery.

The pioneer lithotomists of Kentucky were Dr. Benjamin W. Dudley of Lexington, Professor of Surgery at Transylvania University, his associate Dr. Bush and Dr. Alban Goldsmith. Dr. Dudley occupied the chair of surgery in Transylvania University from 1814 to 1850. He was a forceful teacher and a brilliant operator. This is attested by the fact that he operated for stone on 225 patients with the loss of but three, a record to which anyone might point with pride today.

Dr. Bush, his associate, operated on 97 patients with stone with a loss of but two. He did 104 litholapaxies with a loss of but four.

Dr. Alban Goldsmith, an assistant and pupil of Dr. McDowell, himself an early ovariotomist, visited Europe at the time Civiale attracted attention to the operation of lithotripsy and perfecting himself in its technique, returned to Lincoln County, Kentucky, where in 1829, he performed this operation for the first time in this state, if not in this country.

Dr. Samuel Brown, Professor of Medicine at Transylvania University, learning of Jenner's work, visited England and, returning to Lexington, had, by 1802, done 500 vaccinations.

Dr. Walter Brashear, of Bradstown, Kentucky, in 1806 successfully performed the first hip joint amputation in this country, if not elsewhere. It is claimed that Napoleon's surgeon possibly antedated him, but certainly without any knowledge on the part of Dr. Brashear of his accomplishment.

Dr. Charles McCreary, of Hartford, Kentucky, in 1813, exsected the clavicle of a 14 year old boy for tuberculosis; at that time, an operation of considerable magnitude, requiring consummate skill and accurate anatomical knowledge.

The environment by which these early pioneers were surrounded, including the lack of hospitals, trained nurses, a knowledge of anesthesia and asepsis, modern surgical appliances and other inherent and almost inconceivable difficulties, makes their work seem near the miraculous.

The first medical school in Kentucky was established in Lexington. In 1780, Transylvania University was established, and in 1799 a medical department was added with Drs. Samuel Brown and Francis Ridgley as professors, this being the first medical school west of the Allegheny mountains. This school continued in existence until 1857, during which time it taught 4,656 students and conferred the degree of Doctor of Medicine on 1,881 of that number.

I have been unable to learn the requirements for admission, but one of the requirements for graduation was a thesis either in Latin, in French, or in English. The theses of its graduates on file in the library of the school today, attest the fact that even in those days there must have been rather rigid requirements, if not for entrance into school, at least for graduation from it.

The endowments of Transylvania University consisted of grants and donations from the states of Virginia and Kentucky, the city and citizens of Lexington, His Britanic Majesty and of sundry individuals consisting of 30,005 acres of land, $267,282.00 in money and numerous manuscripts and books, comprising one of the best libraries at that time in this country. The manuscripts and books on medicine and law from the seventeenth and early part of the eighteenth centuries form today one of the best available collections of that period.

The faculty embraced a coterie of brilliant teachers whose names and fame are cherished as a heritage by the Kentucky profession. Outstanding among them were Samuel Brown and Daniel Drake, the really great doctors or internists of their day; B. D. Dudley, internationally known surgeon; James M. Bush, pioneer lithotomist; Constantine Samuel Rafinesque, world known botanist; Nathan Ryno Smith, who later went to Baltimore; the erratic but brilliant Charles Caldwell; L. P. Yandell, chemist, forceful writer and accomplished teacher, sire of a distinguished generation of Kentucky doctors; William Short Chipley, distinguished alienist; Thomas D. Mitchell, teacher in the schools of Kentucky and Philadelphia; Robert Peter, widely known chemist who performed a greater number of reliable, useful analyses of soils than any chemist of his time and others who while faithful workers in the profession, failed to scale the lofty heights attained by their fellow teachers.

The medical school of the University of Louisville when founded was known as the Medical Institute of Louisville. The law authorizing its establishment was approved in 1833, but the difficulty in obtaining teachers of recognized ability and of securing finances for the new institution delayed its opening. Because of Louisville's strategic location on the chief artery of commerce, its rapidly increasing size and consequently greater clinical facilities, a number of the members of the medical faculty of Transylvania University transferred their allegiance from Lexington to Louisville with the result that the first session was held in 1836-1837. In 1848, a school of law was added and by amendment of the charter the name of the school was changed to the University of Louisville. Under the egis of the brilliant teachers who served in its various departments, the medical center of Kentucky was shifted from Lexington to Louisville. The torch of our beneficent science which had burned so brightly in Lexington was borne in the direction in which the Star of Empire so long held its way. The roster of the early teachers in this school contains the names of many whose stars now gleam from the diadem of immortality. Men of energy, ability and impressive personality they helped mould the thought of medical science as taught in America and educated a generation of practitioners. Samuel D. Gross, Henry Miller, Jebediah Cobb, Lunsford P. Yandell, Benjamin Silliman, Lewis Rogers, Daniel Drake, T. G. Richardson, Austin Flint, Paul F. Eve and Benjamin R. Palmer constituted a galaxy of teachers beyond compare. Dr. Gross was head of the surgical department for 16 years during which time most of the work on his monumental system of surgery was done. His works on diseases, injuries and malformations of the urinary organs and that on foreign bodies in the air passages were published while here as was his report upon an experimental study

of penetrating wounds of the abdomen which led Dr. W. O. Roberts, one of his successors in the surgical department to perform, in 1883, the first successful operation for penetrating wound of the abdomen with injury of the intestine.

Dr. Samuel Drake during his stay in Louisville practically completed the phenomenal work to which he had devoted more than thirty years, entitled "A Systemic Treatise, Historical, Etiological and Practical on the Principal Diseases of the Interior Valley of North America as they appear in the Caucasian, African, Indian and Esquimaux of Its Population." Of the early teachers in the school, Drs. Samuel Gross, Theophilus Parvin, and James Holland removed to Philadelphia, Dr. Austin Flint to New York and Drs. Tobias Richardson and Samuel Bemiss to New Orleans, in which cities they enjoyed distinguished careers as leaders in the profession. During the greater part of the past century, the system of medical education consisted of apprenticeship and attendance on lectures. There were but few hospitals, medical literature was in its infancy and the opportunities afforded by the medical societies of today were unknown. The professors in the medical schools were the accepted leaders, hence men of ability sought such positions as a means of winning recognition and distinction. With such conditions prevailing, it was but logical that with the growth of Louisville as a medical center the number of men aspiring to teaching positions became so great as to result in the establishment of new schools. The Kentucky School of Medicine was founded in 1850; the Louisville Medical College in 1868; the Hospital College of Medicine in 1873 and the Medical Department of Kentucky University in 1898 leading to what Dean Moore has referred to as an undesirable multiplicity of schools. However, the men who taught during the transition period molded medical thought in Kentucky and were the connecting links between the old and new eras. In the words of Dr. L. S. McMurtry "The old system had its day and the men who instructed with lecture and quiz prepared the way for the greater achievements of the present age. The science of medicine has made wonderful strides in these latter years but there were great men and master minds in the olden time." With the advent of the laboratory, the growth of the allied sciences and the development of hospitals, medicine ceased to be empirical, became more and more a science and medical education conformed to the inevitable change.

In 1908, these four schools were amalgamated with the Medical School of the University of Louisville which, if considered with the years of its antecedent, Transylvania University, is now approaching the completion of 150 years in medical education. One hundred and fifty years is a long time and suffices to cover the activities of several generations. We cannot, as our English friends do, go back along the pathway of centuries and admire and revere the colleges of Oxford and Cambridge. Compared with them, we are a young people and a young country, but from our standpoint our medical school is old enough to be crowned with hoary years.

In the contemplation of the lives and the work of our forebears, it is quite obvious that some of them have been accorded a great privilege, that of contribut-

ing to the sum total of human knowledge and of adding materially to the betterment of human welfare, thereby rendering an important, unselfish service, which stamps them as benefactors of mankind. They have done their share in building the roadway which we now so readily travel, the inscription on its milestones bearing fruitful evidence of the old adage, "Per aspera ad astra." Their powers, intellectual and material, were the result and fruit of efforts; they were thoughts completed, objects accomplished, visions realized. They obeyed the injunction of the Greeks who said, "Know yourself;" and of Marcus Aurelius, who bade "Be yourself," and of the Master who taught, "Give yourself."

They encountered trials and struggles and failures to gain that sine qua non, experience, which has been and must continue to be the guide of human endeavor. The developed that intangible something called character, which is no symbol of success, but success itself. They exhibited courage of the degree that Mary Heinstreet had in mind when she penned the following lines:

"Drink of the chalice of courage.
The dark veiled fears
From the passing years
Like dusty garments slip.

"Drink of the chalice of courage,
The Mead of mothers and men,
And the sinewed might
Of the victors fight
Be yours, again and again."

The Internship Under the Accelerated Program*

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When I accepted this assignment, I was naive enough to think I could bring you a few simple, helpful suggestions. I even thought I might devise a simple mathematical formula to divide twelve apples by nine apples, and not have three apples left. The problem is complicated and does not have an entirely satisfactory answer. I wrote nearly 250 letters to a cross section of hospitals, large and small, asking what they were going to do with their internships. I would like to summarize the replies.

As late as the middle of last summer there were hospitals which felt that they could buck the current and still retain a two year service. I know of none of those that are left today. Some hospitals feel that the straight internship is the only real method of training potential doctors, and they, therefore, hope to continue a straight program. I believe the letter which was sent out by Dr. Kirkpatrick of the War Department, suggesting the rotating internship, and twelve months as the limit of the period of internship, will do much to clarify the thinking of everyone interested in the problem. Some of the thinking is muddled, some of it is selfish, and most of it shows a sincere desire to cooperate with the wishes of the Army.

Approximately two-thirds of the hospitals replying to my letter state that they are planning twelve months' rotating internships. Some, if not most, people regard the intern year as the most valuable year of education of the student, and when the medical schools have not seen fit materially to reduce their hours they feel that the internship should not be reduced below one year. They plan, therefore, on overlapping during the last three months. Most of them will assign the students to either senior intern duty, or assistant resident responsibility, feeling that the number of residents and junior staff men lost can be replaced for those periods by the increased number of interns.

Some hospital administrators honestly feel that overlapping is going to interfere with the quality of intern instruction, and are very hesitant in accepting the program. Housing this additional group of interns is a real problem with certain hospitals. Some hospitals are renting additional space and some are double decking their present quarters. Some hospitals plan on vacation periods

*Read at the Fifty-third Annual Meeting of the Association of American Medical Colleges, held in Louisville, Kentucky, October 26-28, 1942.

during the overlapping three months. Others are going to put the students—these are hospitals connected with medical schools—for short periods in the basic science departments. Still others are considering the possibility of loaning interns on a full or part time basis to practitioners in the city to replace their associates who have gone to war.

I asked one administrator what will happen to the individual who, supposedly, has had a one year internship, but three months of it has been served outside the hospital. I know of at least one state of the twenty-one states which require a one year internship for licensure that would not consider this experience the equivalent of an approved internship.

Some hospitals feel that to reduce the internship to nine months would make it difficult to return to a twelve month period after the war. Certainly, in any discussion of reduction of the length of the internship, we must realize that twenty-one states now require a full year rather than a nine month period. Approximately one-third of the hospitals are still considering the possibility of the nine month service. Some of them, in so doing, plan on loaning the intern to another hospital for a period of three months, which does, in fact, give the intern a one year service. Some feel that it is impossible to rearrange their programs or make additional housing facilities available. Unfortunately, the attitude that it is difficult to shift is found in some hospitals which are close enough to medical schools to find themselves with a full intern complement.

The reduction from a two to a one year service has greatly increased the number of internships in teaching institutions, and has diminished by an equal number the opportunities for smaller hospitals to obtain interns. I am inclined to think this may be a very healthy move and, personally, I was happy to see this organization approve its confidential list of acceptable internships. Too many of the small hospitals still regard the intern as a source of cheap professional labor. The number of smaller hospitals that are tripling the salaries gives one the impression that they are attempting to buy professional service rather than to offer educational opportunities. The confidential list will tend to place interns in those hospitals best able to give them a service of real value.

The State of Pennsylvania is unique. The present law says that a hospital cannot have more than one intern for each twenty-five occupied beds. This would prohibit overlapping if a hospital had its quota. Another law requires a minimum service of twelve months.

To summarize, most hospitals will develop a one year rotating internship, and in order to fit into the nine month year of the medical schools, will make provision for overlapping.

DISCUSSION

DR. ARTHUR C. BACHMEYER (University of Chicago): Dr. Buerki has brought out the main points in this whole consideration of the intern program. There are reverbrations from the non-teaching hospitals, because so many teaching hospitals have increased the number of their internships. I think that reflects the fact that they are afraid of the non-teaching hospitals, the educational programs which they are more able to offer than they can develop, or that have been developed in many of the non-teaching institutions. The present confusion probably will be helpful, as Dr. Buerki has indicated, in emphasizing the fact that attention must be given to the educational opportunities offered during the internship.

There is one element of intern training that Dr. Buerki has not mentioned that we could very well consider, and that is the extended use of interns either during this overlapping period, or throughout their entire service, in the outpatient departments, in which many hospitals have not used the intern and which offer very valuable experience. I think some of the difficulties of the nine-month period will be alleviated, in part, by the staggered programs of our colleges. We are not all on the same nine-month program. Some of the confusion will be relieved because some colleges are going to graduate classes at different periods during the year.

It appears that most of the hospitals that have carefully considered the program are going to be able to adjust the overlapping period by the use of some special services, for instance, such as in pediatrics, obstetrics and some of the specialties, where, heretofore, they have used second year interns rather than first year interns. I know that is true in our own institutions, and in several others with whom I have been in correspondence.

So far as the straight internship is concerned, the recent inquiry among a number of teaching hospitals indicates that they are still trying to maintain the straight internship. However, some of the announcements that have come from the Surgeon General's office begin to throw doubt into the minds of the students, as to whether they will not be assigned to less desirable positions in the Army if they come to the service with only a straight internship. That is beginning to have some influence on our teaching hospitals, and is resulting in the conversion of the straight internship to the rotating type of service. You cannot crowd a twelve months program into a nine months period and retain much of its educational value.

Teaching of Public Health and Preventive Medicine

Report of Committee

H. S. MUSTARD, *Columbia;* CHAS. E. SMITH, *Stanford;* JOHN S. GORDON, *Harvard;* and JEAN A. CURRAN, *Long Island*

(The preliminary report of this committee was presented to the Association of American Medical Colleges at the 1941 meeting and was published in the Journal of the Association of American Medical Colleges, March, 1942, p. 80. The present report was essentially the same as the 1941 report but the committee felt that it should not be republished at this time and that the committee be continued to make its final report in 1943. The following discussion followed the reading of the 1942 report.)

DISCUSSION

DR. W. S. LEATHERS (Vanderbilt University): The two progress reports which have been prepared by the special Committee of this Association, one published in the official JOURNAL in March, 1942, and the other presented today, contain data of definite value concerning the teaching of preventive medicine and public health to undergraduate medical students. This information should be of much interest not only to those who have been engaged for a number of years in this phase of instruction but also to others who may be interested and who are endeavoring to develop reasonably adequate programs for teaching this subject.

This Committee wisely calls attention at the outset to the significant difference between "preventive medicine" and "public health." Obviously, preventive medicine is the more comprehensive usage and in reality includes public health. On the other hand, public health deals essentially with the population *en masse* or in the aggregate. This viewpoint was clearly explained in a memorandum published in 1919 by the Ministry of Health of England designated "An Outline of the Practice of Preventive Medicine" by Sir George Newman. It was Sir George who also first stressed the intrinsic importance of integrating the teaching of preventive medicine and public health with other subjects of the medical curriculum. The latter viewpoint was expressed with such emphasis that it appeared to be the essential and possibly only procedure in this type of instruction. Those of us who have had experience as teachers of this subject now know that the more comprehensive and broader approach in teaching this subject proves more effective although the viewpoint expressed by this eminent authority remains important and of great practical value.

The Committee on Professional Education of the American Public Health Association is of the opinion that there are two great needs in medical education in relation to public health: (1) to instruct more adequately students graduating in medicine in the application of the principles and techniques for the prevention of disease and protection of individual health in special and general practice; and (2) to enlist the interest of medical students to a greater extent, if possible, in adopting public health as a career. It appears to be the experience of institutions where this subject

is taught comparable to other subjects of the curriculum that about 10 per cent of the students enter on public health as a specialty. It is my observation that they also cooperate better as practitioners with public health officials and are more likely to become interested in this special field as a professional career.

It seems evident that the teaching of preventive medicine is becoming increasingly necessary as a part of the schedule of instruction in medical schools. The urgency of this need is being greatly reenforced because of the demands which are being made for this type of instruction as a result of the present great emergency. The obvious and urgent needs of the civilian population have also greatly enhanced this point of view. The post war period will undoubtedly require more emphasis on this phase of preparation for the practice of medicine. There is no point in further stressing to this group this impelling need in medical education.

The real purpose of courses in the preventive and public health aspects of medicine is to teach adequately undergraduate students without any particular reference or emphasis on whether or not these men as graduates adopt public health as a career. The objective of such a course is clearly to enlist the interest and to emphasize the principles and techniques required in integrating preventive measures in special and general practice and to actuate intelligent support of the modern trends concerning public health. If, perchance, a student after graduation decides to become a health officer or follow some specialty of public health, such as, biostatistics, epidemiology, and so forth, this may be considered a very desirable by-product which will inevitably occur by establishing more adequate programs of teaching in medical schools. It has been carefully estimated that about 10 per cent of graduates of medicine should become interested in public health as a career to supply the demands in the future of official and unofficial health agencies.

The beginning of instruction in this subject in the medical curriculum as well as the content of courses will be influenced largely by the facilities that are afforded to attain this purpose. Reference was made to the variations in courses of instruction in medical schools, but there must be, of necessity, differences in these respects. Such courses should be characterized by a degree of flexibility and adapted particularly to the conditions and problems that exist within and surrounding the medical school. I think differences in the arrangement or planning of courses as well as content should not be discouraged, provided the basic objective is maintained; namely, to give the right kind of instruction to students in the preventive aspects of medicine.

Emphasis has been placed on the desirability of some instruction in biostatistics in either the first or second year of the medical curriculum. This is an exceedingly important point with reference to the scientific outlook of medical students. I think that a comparatively short course should be provided in this subject. We have found it desirable to give a course of this kind during the first term of the second year which I prefer to term "medical statistics." This is done for the purpose of giving students a better understanding of methods of analysis and interpretation of quantitative observations. This course is given during eleven afternoons. The greater part of the work is based on laboratory problems which are closely related to the clinical experience of the student. We have found that the students are very much interested and are doing painstaking work in this respect.

The interest which may be created at the outset in preventive medicine should be maintained throughout the curriculum. It is my measured judgment that the regular and major course in preventive medicine and public health should be offered, if practicable, in the fourth year. The report of the Special Committee refers to the fact that only eleven schools at the present time require as much as 4 per cent of curricular time in this subject. This allotment of time, as stated in the report, is advised by both the Council on Medical Education and Hospitals and this Association.

It is of interest that there were 24 full-time departments of preventive medicine and public health in medical schools of the United States and Canada in 1935-1936. Of this number 18 were in the United States. But at present, seven years later, the number of full-time departments has increased from 18 to 27 in the United States, which is an increase of 50 per cent. I submit that in view of the difficulties involved and particularly the lack of adequately prepared personnel to assume such responsibility this is a reasonably normal advance. In fact, if all medical schools at the present time were provided with sufficient funds to establish full-time departments in this phase of teaching, I am confident that the greatest difficulty would be experienced in securing individuals who are sufficiently interested and who are prepared to accept responsibility for teaching and research in this field.

One of the most important elements in attaining success in teaching this subject to medical students is a definite integration of the instruction with the fundamental sciences and especially with the clinical departments of the medical school. Adherence to this principle is of the greatest importance in maintaining the interest of the student, in indicating more clearly the objectives desired, and in obtaining the cooperation and maintaining the interest of the medical faculty. The student is keen to observe whether the subject matter given is related in a reasonable way to his daily experience especially in the clinical departments of the medical school. Therefore, I think that it will be found helpful to give much time and thought in effecting sound procedures which will accomplish this result. The plan which may be adopted must of necessity vary with different medical schools and, indeed, should not be formal, but flexible.

There is much that may be said concerning these reports which are being constructively developed, but I wish to stress three points which, based on my experience and judgment, are of fundamental importance in attaining success in teaching medical students preventive medicine and public health: (1) There should be a full-time department; (2) there must be a reasonably adequate budget; and (3) a well ordered plan of teaching must be developed and maintained and this should be reenforced by a sustained interest in investigation and research. Doubtless it will be possible only to approximate this objective in a number of medical schools for many years, but eventually this goal should be attained if the best outcome is achieved.

Dr. Stanley Dorst (University of Cincinnati): It is entirely a coincidence that the last bulletin of the College of Medicine, University of Cincinnati, is devoted entirely to the extramural teaching of preventive medicine and public health. We have found, and I think it has been the general experience of all of you who have been so interested, that the teaching of public health and preventive medicine is apt to be

rather sterile without a very carefully planned extramural program. A copy of this bulletin as is always the custom, will be sent to the libraries of the medical schools.

DR. W. G. SMILLIE (American Public Health Association): The American Public Health Association is most grateful to this Association for the interest you have taken in this important matter. Dr. Mustard's preliminary report gave us certain data of which we were already clearly cognizant, namely, that preventive medicine and public health was of minor interest and of secondary importance in the minds of most medical educators. We were not aware, however, of certain facts brought out by the second report. We did not realize that this lack of interest may be due, in great part, to the fact that the teachers of this subject have not yet clearly defined their own objectives.

What is public health, and what is preventive medicine? We, as teachers of preventive medicine, can be excused, perhaps, if we are uncertain as to what we shall teach. Perhaps, we cannot be censored if there is not general agreement as to how we shall teach our subject, but we should, at least, know what we are teaching, and for what purpose.

We have certain broad premises, it seems to me, on which this conviction can be built. In the first place, you have already pointed out that 90 per cent of the students of medicine become private practitioners of medicine. In the second place, we are quite sure that we are not teaching preventive medicine and public health to prepare students to be grade two health officers. On the contrary our duty is to prepare medical students to meet their obligations as private practitioners of medicine.

What is public health? Public health encompasses those activities that are undertaken for the prevention of disease and the promotion of health, which are a community-wide responsibility. They may have been carried out by official departments of public health, by voluntary agencies, by departments of education, by departments of agriculture, by state and county medical societies, but not by practitioners of medicine. The physician should know about these activities; he should participate in them, as does any other good citizen, but these activities are not his direct responsibility.

What, then, is preventive medicine? Preventive medicine encompasses those activities that are the direct responsibility of the individual in the prevention of disease and the protection of the health of himself and of his family.

Who is responsible for the proper execution of those activities? The private practitioner of medicine, as family health adviser.

Public health, then, represents community responsibility for community benefits. Preventive medicine represents individual responsibility for the family as a unit. In one instance, the whole community is the unit, and in the second instance, the family is the unit under consideration.

"But," you may say, "you are splitting hairs. The objectives in each are the same. This should be a joint enterprise. Any activity, in fact, that is undertaken for the promotion of the individual and family benefits the mass. Any activity that is undertaken on a community wide basis for the protection of health obviously benefits the individual and the family."

This is readily granted, but we must realize and reemphasize the fact that the foundations of our democracy are based on the principle that the individual is responsible for the protection and welfare of his own family. He employs the physician to aid him in carrying out these responsibilities. It is the physician's duty to prepare himself to meet this obligation.

Again, I insist that the terms "preventive medicine" and "public health" are not interchangeable, because the responsibility for and the execution of these activities are on an entirely different basis. Since it is the responsibility of the practicing physician to practice preventive medicine rather than public health, why not place our teaching emphasis accordingly?

I wish to suggest, therefore, that we teach our students the broad, general principles of public health and their method of execution. He should know them; he should participate in them in his community. I wish to suggest, furthermore, that we place special emphasis on his training in the medical school in preventive medicine. This training should be coordinated with his teaching in clinical medicine, and thus he will be prepared to meet his obligations when he assumes them in the community.

Dr. Jacques P. Gray (Medical College of Virginia): It seems to me that what we should attempt to do in a course in medicine is to develop an attitude. This has been brought out in the discussion and in the paper, but not in quite that language. If we can develop the attitude on the part of the graduate in medicine that he has definite responsibilities and an important role to play in the public health program, and that the practice of medicine includes the practice of preventive medicine, we will have done the job.

Dr. Chauncey D. Leake (University of Texas): The teaching of preventive medicine, as differentiated from public health, is inevitably influenced by the theory of the curriculum in the particular school involved.

There are two general curricula theories, one, giving emphasis to the training of general practitioners; the other tending toward the development of specialists. If the training of the student is toward general practice, then the function of teaching in preventive medicine is to show him how to cooperate with public health authorities and, of course, how effectively to apply preventive medicine in his own practice. On the other hand, if the theory of the curriculum in the school is toward the teaching of specialists, then the teaching of preventive medicine tends toward the teaching of public health officials, although there might also be an attempt made to train specialists in cooperation with public health or to develop preventive medicine work in their own specialty.

There is one important factor in connection with the teaching of public health that I believe should be emphasized, again differentiating it, as has been done this morning, from preventive medicine. Public health, dealing with the handling of people *en masse,* requires an appreciation of sociology and of economics and of politics, which is beyond the ordinary comprehension of undergraduate medical students. A degree of maturity, I think, is required for the successful teaching of public health that should take it out of the undergraduate curriculum.

Teaching of Military Medicine

Report of Committee

EDWIN P. LEHMAN
University of Virginia, Chairman

(This report was published in the July, 1942, issue, page 229, of the Journal of the Association of American Medical Colleges. The discussion on the report, which was reviewed by Dr. Lehman at the annual meeting of the Association, follows.)

DISCUSSION

DR. GEORGE PACKER BERRY (University of Rochester, School of Medicine and Dentistry): Your Secretary, Dr. Zapffe, has asked me in discussing the report on the *Teaching of Military Medicine* by Dr. Lehman and the members of his Committee to give some account of our efforts at the University of Rochester School of Medicine and Dentistry to adjust our curriculum to wartime needs. Before doing so, permit me to compliment Dr. Lehman and his colleagues on the excellence of their report, particularly on their constructive analysis of the new material and the shifts in emphasis that the demands of the war have made on our program of medical teaching. I shall attempt to illustrate some of the points involved by citing examples from our experience at Rochester.

Early last spring a faculty committee was appointed to study our wartime teaching problems. It consisted of Dr. William S. McCann, Professor of Medicine, Dr. John J. Morton, Professor of Surgery, and Dr. George P. Berry, Professor of Bacteriology, Associate Professor of Medicine and Assistant Dean, Chairman. Following extensive discussion, our faculty unanimously endorsed the thesis that those subjects to which the war had given particular significance could better be taught in the various departments of the Medical School that they naturally concerned, within the structure of the existing curriculum, than as a new and separate course called "Military Medicine." Two considerations in particular led us to this decision.

First, in telescoping our program into its present accelerated form, we lost over 5 per cent of our teaching time. (Previously our schedule called for 4 years of 36 weeks each, or 144 weeks in all; we now teach 3 years of 45 weeks each, or 135 weeks in all.) This curtailment had necessitated re-appraising subject matter and making certain deletions; the incorporation of a new course would have meant more.

Second, it is just as important in wartime to stress the fundamentals of medicine as it is in peacetime—if anything, more important. In studying our teaching program, therefore, we endeavored to focus sharply on the primary objective, namely to emphasize the ABC's of medicine rather than the XYZ's. It was possible to do this with particular and frequent reference to war needs, and to do it within the existing curriculum.

We made no effort to cover what has been called in Dr. Lehman's report the "organizational aspects" of Military Medicine, feeling that our time was more usefully devoted to the teaching of medicine proper.

The following examples, selected because of their importance, by no means cover all the changes that we have made as a result of the war. They will be dealt with in the order in which the subjects concerned occur in our teaching program.

Anatomy—In cooperation with the Department of Surgery, First Aid is being taught to all members of our first-year class of medical students in conjunction with their work in Anatomy. By means of lectures and practical exercises, the material in the *Red Cross Manual* is covered. First Aid is again presented to all fourth-year students in connection with their surgical training and their course in Clinical Anatomy.

Physiology—Throughout the work in Physiology, particular and frequent reference to war needs is made. Not only the lectures, but also the class experiments have been changed to meet the new emphasis. For example, a tank for low and high pressures has been installed which will permit simulated ascents to high altitudes and exposures to pressures greater than atmospheric. Among the subjects particularly stressed are the following: the physiology of high altitudes and dive-bombing, of fatigue states, of traumatic shock and burns, of dark adaptation and night vision, of resuscitation and artificial respiration, of hot and cold climates, and of water balance with reference to thirst in the desert and on the sea. Oxygen indoctrination is being taught in theory and practice.

Vital Economics—This department of the College of Arts and Science is housed in the Medical School and since the opening of the School of Medicine and Dentistry in 1925 has given a course to second-year medical students entitled "Physiology of Nutrition and Endocrinology." The Director was head of the Division of Food and Nutrition of the Surgeon General's Office in World War I and inaugurated nutritional work in the army.

In the teaching of medical students the methods of evaluation of nutrients in many kinds of diets are elaborated. Students get instruction and practice in the preparation of balanced menus and in elementary cookery. They weigh, measure and calculate diets which they themselves cook and eat quantitatively, at the same time collecting their urines in 24-hour periods for analysis. Frequent reference to dietary conditions as they exist in training camps, field operations and actual warfare are afforded in lectures and special seminars. Sanitation of foods, losses of nutrients in storage and cookery are also stressed.

Biochemistry and Pharmacology—More time is given to clinical methods of blood analysis and to common functional tests, such as gastric analysis, glucose-tolerance, liver-function, etc. New material is presented on the war gases, and the drugs used in First Aid and Tropical Medicine are stressed.

Bacteriology—Since this is my field and I therefore feel more competent to speak, I may be excused perhaps for going into some detail. We are trying to focus more sharply than ever on our main purpose, which is to prepare men for the practice of medicine. It is not our aim to make either bacteriologists or technicians; we strive to lay a firm foundation on which the medical student can build during his clinical years. To this end we present Bacteriology in association with the related fields of Serology and Immunology. The reactions of the host to the parasite and to its products are correlated with the attributes of the parasite itself. It is "the bacteriology of infection, not solely the bacteria of infection . . .", as Professor George H. Smith of Yale has so well put it, that we attempt to teach. Our hope is to provide an insight into the principles of parasitism and its results. We devote over 200 hours of lectures and laboratory exercises to this end.

Currently new emphasis is given to hygiene and sanitation, epidemiology, the control of communicable diseases, the prophylaxis and treatment of venereal infections, and similar problems. We stress particularly diseases of bacterial, rickettsial, spirochetal, and viral etiology that are important in the Tropics. The subjects are dealt with as they concern the civilian population in war-time as well as the personnel of the armed forces.

Parasitology—Parasitology is taught in the Department of Bacteriology during the latter part of the second academic year, immediately following the work in Medical Bacteriology and Immunology. For over a decade our required course has occupied more than 80 hours. Lectures take up a quarter of this time and the rest is given over to laboratory exercises. We consider all the important parasitic diseases of man, placing emphasis on the "parasitology of infection" as well as on the "parasites of infection," to paraphrase Professor Smith. The course deals with the intestinal protozoa, malaria, the blood flagellates, the important trematodes, cestodes, nematodes,

and arthropod vectors. Consideration is given to life cycles, pathology, epidemiology, prevention, clinical symptoms, and treatment. The course is given by a group of instructors especially qualified by postgraduate training in Parasitology and practical experience in the Tropics. The Departments of Medicine and Pediatrics, during the third and fourth years, carry this teaching forward, devoting 20-30 hours to a clinical consideration of parasitic diseases.

Because we have felt for a long time that most medical schools in this country do not give anything like enough consideration to Parasitology and Parasitic Diseases, I seize this opportunity to compliment Dr. Meleney and the members of his Committee on the excellence of their *Report of Committee on the Teaching of Tropical Medicine in Undergraduate Medical Schools of the United States.* We endorse so heartily all they say that I will let their report speak for us and say no more about our program at Rochester.

Pathology—Pathology is taught concurrently with Bacteriology. The pathological aspects of the subjects already referred to in Bacteriology are similarly stressed by the Department of Pathology. Abnormal physiology is emphasized as well as the frequency with which normal or abnormal structure (gross and histological) is associated with abnormal function. A large autopsy service (600-700 yearly) makes it possible for students in groups of four to participate in post-mortem examinations. Clinical-pathological conferences emphasize diagnostic difficulties and abnormal function.

Medicine—The primary aim of the department is, as is true of the other departments, instruction in the fundamentals. I keep repeating this statement because we believe that it cannot be overemphasized. Thus, much time is devoted to drilling the students in the art of history taking and of making adequate and careful physical examinations. Particular attention is given to physical diagnosis.

Shifts of stress have been made as regards clinical subjects that are particularly pertinent from a military point of view—for example, shock, hemorrhage, and sulfonamide therapy. Students receive special instruction in venesection and the procuring of blood for plasma. They are trained in the detection of tuberculosis, the evaluation of heart murmurs and of cardiovascular disorders, in the examination of the eyes, ears, teeth, feet, etc. Respiratory infections have always held a prominent place in our instruction; they hold a more prominent place now. The venereal-disease problem receives much attention. Enteric infections are emphasized, so are peptic ulcer and diarrhoea. There is little clinical material with which to demonstrate Tropical Medicine but, such as is available, is used exhaustively. Special lectures and practical demonstrations on war gases and industrial poisons are provided. Among other subjects on the list for extra consideration are meningitis, diphtheria, nephritis, and the common dermatoses. Last, but not least, much time is set aside for studying the functional nervous disorders.

Our fourth-year students serve a part of their time as active members of the clinical staff, during which period their duties are essentially those of the usual intern. This constitutes one of the most valuable parts of their instruction.

Surgery—The Department of Surgery has rearranged its program to stress those conditions which the graduates will encounter in the armed forces. Thus, the emphasis is on reactions to acute and chronic infections and trauma, less stress being placed on embryological maldevelopments and neoplastic disease.

The students have many ward-rounds, clinics and lectures on the local reactions to injury as conditioned by the tissues involved. The different types of response to the acute and chronic infections are also presented, and the general bodily response to both trauma and infection. The subjects considered include contused, lacerated and destructive wounds of the soft parts, bones, viscera, nervous tissues, etc., acute and pyogenic infections of the same, granulomatous responses to fungi and yeasts, specific infections of especial importance to the armed forces—gonococcal infections, syphilis,

etc. The surgical complications of amoebic dysentery and other parasitic infections are presented.

The common surgical complaints encountered in the armed forces are considered: pilonidal sinuses, semilunar cartilages, hernias, varicose veins, backache, foot injuries, frost-bite, simple and compound fractures, burns, shock, hemorrhage and blood substitutes, etc. The effects of anoxemia, compression and decompression, and aeroembolism receive more prominence than formerly.

With a diminished number of teachers and assistants in the department, the third- and fourth-year students are given more practical handling of patients than formerly. They act as junior interns, doing much of the pre- and post-operative care. An endeavor is made to ground them in physical examination and diagnosis, with a correlation of the physiological and pathological features of disease. They are also giving anesthesia under supervision and are taking an active part in the operating room and in post-operative therapeutic measures. They are receiving instruction in physiotherapy as applied to surgical care.

Examples could be multiplied. New material coming out of the present war experience has received particular attention, such as the developments of sulfonamide therapy, immersion foot, blast injuries, renal failure following crushing, etc. Nutrition from the point of view of wartime needs has been stressed throughout the medical curriculum, more time has been devoted to the practical aspects of x-ray diagnosis, shifts have been made in the Departments of Pediatrics, and Obstetrics and Gynecology. The Library of the Medical School has been collecting pertinent current literature and making it readily available to the students. Enough has been said, I hope, to show how we have endeavored to meet the main issue—the teaching of the fundamental principles of medicine with particular and frequent reference to war needs and the accomplishment of this program within our existing curriculum.

Dr. E. S. Ryerson (University of Toronto): I would like to refer to the aspect of military hygiene rather than military medicine. One of the first things, when a man is taken into the Army, is to try to make him physically fit, and this is carried out by physical activity. We, as doctors, have paid too little attention to the development of physical education. Physical fitness can be brought about only by physical activity and in relationship to troops this should not be left entirely to the physical education man. If there is not a physical education man available, the medical officer should see that physical activity is carried out regularly.

Every individual who has been in the hospital and has been sick, whether it is of a surgical nature in which the local part requires physical activity in order to restore its function, or in a general way, the convalescent patient can be restored to physical fitness very much more rapidly by a graded course of activity under the supervision of the medical officer.

The aspect of nutrition to the fitness of the troops in addition to the convalescent should be recognized by medical officers. We have been thinking of nutrition too much only in its relationship to the treatment of actual disabilities.

Fatigue in relationship to nutrition has been recognized in industry, and they are realizing that fatigue can be helped not only by periods of rest during the morning and afternoon, but also by a snack to eat. As it was put in the *New York Times* recently, in describing this aspect of it, many of the large industrial companies are sending around vitamin vehicles or calorie carts so that in mid-morning, when fatigue begins, they can have a snack to eat and a short period of rest, which restores that individual so that during the last two hours of his period he does very much more effective work.

I wonder if the feeding in the Army, which has been enormously improved as a result of the knowledge of nutrition, should not also take into consideration the periodicity of something to eat, as well as the period of rest?

Dr. Sanger pointed out to me that the period of rest was recognized by Stonewall Jackson in the handling of his troops. Every two hours he made the whole unit lie flat on their backs for a period of rest, and he had his army much more fit than any other of the generals of that period.

We also recognize this relation of fatigue to nutrition from a sporting standpoint. Some of you may happen to have read about the experiment on a group of golfers. Thirty golfers had their blood sugar taken before lunch, then were given a good ketogenic lunch, and then had it taken after lunch and at every odd hole. It was found that the blood sugar very rapidly went down, and at the ninth or tenth hole the blood sugar was at a low level, and their game was also at a low level. That was the time when they were missing their shots. That was the time when they were getting irritated with one another and calling each other names. It was found that this state might be overcome by taking a glucose tablet, chocolate bar, or something of that kind, with the result that within the next hole or two, their game picked up and they did very much better in the last nine holes than they had been doing in the ones just played.

Both these illustrations, i.e., in industry and in games, suggest that in the Army a man should not go through a heavy morning's work between breakfast and dinner, and a hard afternoon's drilling between dinner and supper, without a biscuit, chocolate bar or snack to eat in the intervening period to counteract his fatigue. When a man has not had something to eat in the interval, he becomes so ravenously hungry that he frequently overeats when the meal time comes and, as he is in a state of fatigue, his digestive apparatus is unable to digest the meal satisfactorily. One wonders whether the large number of cases of duodenal ulcer that are occurring in the troops may not have this background as the cause of the ulcer.

I think that the Medical Officer in the Army should take the initiative and assume the supervision both of the nutrition of the troops and of their physical activity, cooperating with the physical education instructors, if such are available in their unit.

Dr. Edwin P. Lehman: I want to supplement the splendid review that Dr. Berry has given, which presented a method of incorporating the subjects recommended by our committee within the established curriculum, by reporting very briefly the solution we have employed at the University of Virginia. We stress, of course, throughout the regular courses the medical subjects that are of importance in military life. In addition, we give a separate correlation course to the fourth year students consisting of twenty-four hours of lectures, given in the evenings, one evening a week for twelve weeks. We have found time for this course by omitting for the time being elective courses previously given to fourth year students. This entails a sacrifice which is also justified by the increase in teaching load resulting from the accelerated program and the loss of teachers. A course in first aid is also given to the first and second year.

Anatomy: To Be or Not to Be

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To one who has spent the best years of his life in the study and teaching of biology and human anatomy, the present swell in a series of periodic attacks on anatomy in the medical curriculum is a challenge that cannot be brushed aside lightly. The present charge is a two-pronged offensive. One attack is directed at the "institution" of anatomy, and the other at the "wardens" of this institution —the anatomists.

About twenty years ago, medical journals, particularly the *Journal of the American Medical Association,* carried a considerable number of articles criticizing the teaching of anatomy in medical schools and in some cases suggested remedial measures. These criticisms, in the main, appeared to me to be justified. Briefly, they were directed against a method of teaching that required a memorizing of anatomical minutiae—an attempt to build up a storehouse of morphological facts and data without any correlation to a definite objective. It was a common experience at this time, when "anatomy" inadvertently might be mentioned in a conversation with a practicing physician, to get the retort: "I forgot my anatomy a long time ago." We sometimes get the same retort today. Obviously, the statement was not true. It should have been: "I never did know any anatomy." There can be no ground for argument concerning the futility of memorized "knowledge" in general and memorized minutiae in particular. The remedial measures that were suggested, unfortunately, did not appear to be based on any sound educational philosophy, but were primarily aimed at making anatomy "practical."

These criticisms of a former day served a good purpose. They stimulated teachers of anatomy to give thought and study to the objectives of anatomy and to the technique of teaching. There followed a number of articles by anatomists on "the teaching of anatomy" as well as on the contents of a course in anatomy. The American Association of Anatomists has conducted at least one symposium on the teaching of anatomy in recent years. A large number of departments of anatomy have completely forsaken the static, memorized and detailed anatomy of former years.

Whereas the critics of former years directed their attacks on the method of teaching and the contents of the course, the critics of today, as exemplified by Dr. Wm. Dock,[1] challenge the validity of anatomy as a self-respecting member in a society of essentials in the medical curriculum. At the risk of being branded a "die-hard conservative," or, perhaps, "an old fogey," in a world that is spectacularly progressive, I challenge the validity of criticisms and especially

1. Journal of the Association of American Medical Colleges, November, 1942.

question the soundness of the educational philosophy involved in Doctor Dock's remedial measures.

Doctor Dock believes that "Dissecting a human cadaver is not a very stimulating experience at the threshold of medical education, and often this unique opportunity is completely wasted on the freshman medical student as he is taught today." I can quite agree with Doctor Dock if dissecting a human cadaver merely means a mechanical teasing apart of body structures followed by an attempt to memorize the descriptions of these structures. Obviously, I do not know on what experience or data Doctor Dock has arrived at the conclusion that "Dissecting a human cadaver is not a very stimulating experience at the threshold of medical education." Based on my own experience, I am obliged to contradict this assertion. In spite of a youthful dread of dead human bodies, my first day in the dissecting room stands out as a red-letter day in my "album of memories." I was thrilled and fascinated. Further, I can speak of the reaction of students to dissection from an experience of thirty years in teaching anatomy to freshman medical students. With a few exceptions, the great mass of students, when entering on the study of medicine, have a quite clear notion of the significance of anatomy in relation to the life work they are entering. They show an interest in seeing and understanding the structures in the human body. By request from the students, we have been obliged to keep the dissecting room open night and day. This speaks for itself. However, we do not teach anatomy by any memorizing process, nor do we tolerate memorized anatomy. Our most difficult task, perhaps, in teaching anatomy, is not teaching anatomy, but attempting to elucidate an analysis of the learning process and apply the principles to the problem at hand.

Doctor Dock suggests a reorganization in the teaching of anatomy. He suggests a plan in which anatomy, as an entity of the medical curriculum, is to lose its identity. In the same vein, but decorated with a touch of psychiatric emissions, Dr. S. H. Kraines[2] advocates a plan for teaching in the medical school which he calls "The Total Concept." The two plans suggested are quite similar and appear to be based on suggestions made by Dr. Alan Gregg[3] at the annual meeting of the American Association of Anatomists in April, 1942. Both plans, according to the authors, give promise of being a panacea for bewildered medical neophytes.

Unfortunately, the problem is not quite so simple. The problems in medical education run parallel with the problems in general education. Just as attempts have been made to solve the problems in general education by the introduction of some new method, so also those who are attempting to improve medical education are primarily trying to find some new method without first clearly defining the problem at hand. It appears to me that the attack on this problem of medical education should be directed or organized in the same manner as we would organize any research problem. This would require,

2. Journal of the Association of American Medical Colleges, November, 1942.
3. Journal of the Association of American Medical Colleges, September, 1942.

first of all, a clear-cut analysis of the problem itself. Obviously, the problem is not a simple one, but is complicated by a number of factors. Nevertheless, there are some fundamental aspects to the major problem, the elucidation of which may go a long way in clarifying the problem as a whole.

Of first significance is the answer to the question: What is the value of anatomy that it should be placed first in rank as a required subject in medical education? It would almost appear puerile to be obliged to answer this question—the answer appears to be so self-evident. If there is any question regarding the significance of a knowledge of anatomy in medical education, perhaps it is based on an erroneous conception of what anatomy is. Technically, anatomy is concerned with structure, but that does not imply that the subject of anatomy or the study of anatomy must be a cataloging or recording of the parts of the body. Anatomy taught in such a manner would be based on a memorizing process and would be worthless. Obviously, it would have very little value as a part of medical education. The value of anatomy in medical education becomes apparent when we clarify the objective of anatomy in the medical curriculum.

The objective of medical education is primarily a preparation for the practice of medicine which involves diagnosing the ills of human beings and applying remedial measures. Certainly, we are cognizant of the importance of medical advancement or research, but this need not confuse our analysis of the fundamental objective of medical education. The fundamental basic preparation should be the same for both types of medical activity. It is obvious that intelligent medical practice can only be based on a "well rounded knowledge" of the human being. Such a knowledge, certainly, should be based on an understanding knowledge of normal anatomy, normal physiology and physiological chemistry as a basis for understanding the abnormal or morbid anatomy and physiology of the sick human being. A knowledge of the detailed functioning of the human body could not be a very intelligent knowledge without a basic knowledge of the structure of the body.

In this discussion the term "understanding knowledge" has been emphasized to distinguish it from "memorized knowledge." It appears to me that a clarification of the significance of these two kinds of knowledge may go a long way in solving our problems. Those who have given thought and analysis to the value of "memorized knowledge" are quite agreed that it is soon forgotten, and, when it is retained has little value. It is acquired by a process of "mental massage." An "understanding knowledge," on the other hand, requires an altogether different kind of mental endeavor. It involves genuine mental activity. It is not soon forgotten. It is the basic stimulus for the acquisition of further knowledge.

In the final analysis, our problem is primarily concerned with the "learning process." Obviously, this holds for medical education as well as for general education. Anyone who lays claim to being a teacher should have a reasonably

clear conception of the nature of the learning process if he is going to conduct his work in an intelligent manner. True, there are some individuals who are "natural born" teachers and intuitively do good teaching. In the professional school and college one sometimes finds an attitude that pedagogy has no place at that level of education, but belongs only in the secondary and high schools. It has been my experience that the entering medical students are never so well trained that it has not been necessary to give extensive consideration to pedagogical principles. There is plenty of evidence to indicate that this condition is quite universal.

If we are to gain a clear conception of the learning process, first, it would be necessary that we have a conception of what learning is. Webster defines learning as, "(1) The acquisition of knowledge or skill or of information; (2) knowledge or skill received by instruction or study; (3) familiarity gained by actual experience." This last definition, perhaps, comes the nearest to being satisfactory in our analysis. Professor John Dewey, eminent student of education, states that "learning is an experience." We can neither accept nor reject this definition until we understand what is implied by "experience." Webster's definitions of experience do not entirely clarify the full significance of the word. One definition comes close to giving a clearer conception of it. This definition states that experience is "the actual living through an event or events; participation in anything through sensation or feeling." It becomes necessary to carry the analysis farther and answer the question: What part of the human mechanism is primarily involved in an experience? Obviously, if experience is a participation in anything through sensation or feeling, then our sense organs, with their nervous mechanisms, are the fundamental structures involved. The utilization or functioning of any or all of these senses may be designated under the one word observation. It follows, that if Professor Dewey's definition is correct, then observation is a fundamental activity involved in the learning process.

It is common knowledge that no two individuals observe alike. One sees a great deal while another sees very little; one hears a great deal more than another. Obviously, the acuity of sense organs may vary and the difference in training would account for differences in observation. But, would this completely explain the difference? A little analysis would indicate that there is some other factor that is fundamentally important in the full utilization of observation. This factor is interest, or to make it a little stronger, let us call it curiosity.

How does curiosity operate to increase the acuity of observation? I may have passed by the door of my office daily over a long period of time and if I had no interest or curiosity in the door, I would have little knowledge or information regarding that door. On the other hand, if I had a curiosity or interest in doors, I would see details regarding form and structure that otherwise would remain unnoticed. Curiosity serves to focus and concentrate observation on details and on the whole. It is the directing factor in analysis, which, in turn, consists of the simple questions: What? Why? Wherefore?

If Professor Dewey's definition of learning is acceptable, then it is obvious that curiosity or interest is the all important factor in the learning process. We might then well ask: What is curiosity and where did it come from? Curiosity is a "desire to know." The satisfaction of this desire involves a certain type of dynamic mental endeavor which will vary in degree with the intensity of curiosity. To discover the origin of curiosity would take us back to the early stages of evolution where, perhaps, we would find its prototype in the "conditioned reflexes" which Doctor Kraines has referred to. The higher animals in nature, if they do not possess an intuitive curiosity regarding their environment at birth, certainly develop a keen curiosity soon after birth. Their existence is largely dependent on curiosity. If the new-born babe shows no signs of curiosity, it is suspected of being abnormal. The outstanding characteristic of the child who is first developing a consciousness of the world about him is curiosity. He wants to know: What is this? What is that? Curiosity is an attribute of the normal child.

We might well ask: What has become of this curiosity that is such a characteristic of the normal young child? On every hand we hear of the lack of interest or curiosity of pupils and students in the grammar school, high school, college and professional school. It is a severe indictment to say that our system of education, while not intended, is so designed that it destroys this essential attribute. Nevertheless, I am fully convinced that this is the case. Our system of public education is not primarily based on a natural learning process, but has been a compromise with an ever increasing complexity of civilization. The problem of correcting this situation is not easy of solution, for many ramifications and factors are involved. Our professional educators have recognized the value of curiosity in the learning process and have attempted to devise methods to develop genuine curiosity. These methods, apparently, have been formulated on a hit or miss basis and have not been uniformly successful.

How can curiosity or interest be re-established or developed? Artificial interest will not take the place of real interest. Interest or curiosity, to be of value in the learning process, must be genuine. Understanding initiates and generates interest. It, perhaps, would be easier to illustrate by example the operation of understanding in the development of interest. One's own personal experience lends itself to a more accurate analysis than the experience of someone else, and for this reason it is, perhaps, permissible to recount my own experience to illustrate the significance of "understanding" in the development of interest.

As a student in high school and college, I did not do well in mathematics. In college, I developed the notion that students are not all alike in regard to their abilities due to inherent fitnesses. Some are intuitively fitted to be linguists, others historians, and so forth. I was particularly interested in biology and, consequently, had a perfectly good alibi in not doing well in mathematics. I was not mathematically minded. After graduation from college and in my first teaching position, I was asked to teach the course in elementary

algebra. I was well aware of the fact that I did not know anything about the subject, but it would have been extremely embarrassing to inform my superior of this and I had no other plausible reason on which to base a refusal. I realized that if I was going to teach a subject, it would be necessary for me to understand that subject, and so I determined to go to work on algebra and stay with it until I did understand it. I still blush when I recount that it took better than two hours of effort to understand that first rule or principle given on the first page, but I have never forgotten the thrill I experienced when eventually I visualized the working or significance of that principle. The next principle encountered was mastered in a much shorter time and subsequent efforts became easier. It is obvious that in my first effort I had difficulty in concentrating and only eventually succeeded because I was determined to stay with the effort until the principle meant something to me. After I understood that first principle, I became interested in algebra. This interest increased as we progressed in the subject to a point where I got the same thrill or satisfaction in solving the more complex problems as I would get from a good game of tennis!

From this experience, and many subsequent similar experiences, together with experiences in teaching, I am convinced that "understanding" is a prerequisite to genuine curiosity or interest. It follows that in teaching anatomy there should be some rational method to develop an interest or curiosity in the human body. The most logical approach would be from the functional aspect. This does not require technical or detailed physiology and biochemistry, but mainly the superficial or general functions of the parts concerned. A few students have a genuine interest in the subject when they enter the course, but, unfortunately, the majority do not have such an interest. In many students the interest that may be present in a dormant state is further submerged by a nervous desire to pass examinations. As a result, they resort to previous experience and attempt to memorize.

We might now answer the question: What is the value of dissection in the course in anatomy? If we accept the statements that "learning is an experience," and that experience is the cerebral response to genuine, interested observation, then it is obvious that dissection offers the opportunity to gain a knowledge of the human body by a natural method of learning through the utilization of the senses. Any subject that embodies laboratory exercises is primarily offering an opportunity to make use of this advantage in the learning process.

While dissection represents the major approach to an understanding knowledge of the human body, a certain amount of reading is essential. How does reading or study of a text fit into the concept that "learning is an experience?" Reading, to be of any value, must be analytical. Analytical reading results in visualization. We might, then, analyze visualization to better comprehend its significance. A common expression reveals the nature of visualization: "I can see it in my mind's eye." While the actual senses are not involved in

visualization, the cerebral response is similar, or very closely so, to the actual utilization of the senses. Visualization is the next best thing to actual observation. Visualization is sometimes so complete that a subsequent related observation appears like a repetition of a former actual experience.

The suggestion made by Doctor Dock to replace the study of the human body with "medical biology in the widest sense, so as to include genetics, embryology, anthropology and some physiology as well as cytology and anatomy" reminds one of "carrying coals to Newcastle." His enumeration appears to be a fair catalogue of what is usually included in the course in human anatomy with one exception in regard to the enumeration—anatomy comes first and a dissection of the human body forms a basis for a consideration of the other subjects.

Doctor Kraines suggests a plan for teaching in which the "total concept" is the central idea. He condemns memorized knowledge or learning by memorization and advocates "learning by a process of association" together with "meaningful repetition." One hesitates to believe that Doctor Kraines has delved very deeply into the analysis of the learning process when, in the elaboration of his teaching plan, he says: "All further teaching is to be in terms of organ systems, so that the facts which will be presented and *memorized* will be taught and learned in direct sequence to and with emphasis on relationship to other pertinent facts" (italics mine). It is difficult to understand the rationality of a philosophy that condemns memorization in the learning process and then in a suggested method of teaching advocates the use of memorization. Also, it is evident that Doctor Kraines does not have a very clear conception of the memorizing process when he says: "Depending largely on the acuity and training of visual and auditory imagery, this mechanical memorization is relatively easy for some and laboriously difficult for others." I do not think that anatomists can give sympathetic consideration to suggested teaching methods that are based on such superficial and irrational study.

The proposition that "learning is an experience" is a rational and logical conclusion from our analysis of the learning process, and until we have discovered some other factor or data that contradict this analysis, it should serve as the basis or foundation on which we construct our teaching methods.

From earliest times, anatomy has been the foundation on which organized medical education has been developed. Through centuries of progress of medicine it was anatomy that pointed the way to new procedures and discoveries. It was the anatomist Vesalius who revolutionized the whole field of medicine as well as biological science from a tradition of "authority worship" to a science based on first-hand investigation. The principles laid down by Vesalius, perhaps, more by a method of action than oratorical pronouncement, served to stimulate advancement in medical knowledge to a point where it became necessary to remove certain aspects of "anatomy" into separate fields of study. The subsequent advancements in these separate fields of study resulted in further subdivisions, until today we have a medical curriculum that bulges

to the bursting point. With the introduction of any new specialty into medical education, there has followed an overemphasis of that particular subject. In time, the relative value of that particular subject becomes established and it settles to its proper level in the medical curriculum. Today, we are in the midst of the introduction of a new subject into medical education, and with the advantage of modern high pressure techniques, it bids fair to submerge all other subjects in the medical curriculum. But, it also, will eventually find its proper level and anatomy will still remain the solid foundation on which medical education is built.

With every new addition to the medical curriculum, time has been taken away from anatomy. In the early stages of medical education this was proper, for anatomy was the only definitely organized subject taught, and it occupied practically all of the student's time. But, with all the subsequent additions that have been made the time reduction for anatomy has been brought to a point where it is nearly impossible for students to gain a well rounded out understanding knowledge of the human body. When we come to a clearer appreciation of the objectives of medical education, and discover that it is advisable to reshuffle time allotments for the various subjects, we may find that it will be necessary to allot more time to the basic foundation on which medical education is built—anatomy.

The Study of Medicine as a Process of Self Discipline

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Owing to strong trends in modern education, the study of medicine is in danger of becoming a technological training. It must be at least this of course, but it can be, has been and should continue to be, more than this for many of its trainees. The nature of this additional factor involved is difficult to describe in words. In this brief essay, it is proposed to attempt to do it in terms of a self discipline, achieved by the student in the course of his technological training.

Although medical men played a role in the development of the scientific aspects of modern civilization, which differed in different periods in the history of science, the importance of their contribution in the over all story could scarcely be exaggerated. If this is true, the converse is inevitably true, namely, that their responsibility for the maintenance of these acquisitions of the past and their propagation and extension into the future is equally great. It is hardly more than a century since the only clear pathway to a higher training in science was through the medical faculty or department of the university. Thus, most scientists of this period had either begun or completed the study of medicine, and the boundaries between medicine as an applied science, and the other more abstract sciences were much less sharply defined than they are at present. That is, doctors and scientists were all less specialized in their attitudes; they had more in common than they have now. In fact, many doctors kept up their interest in one or more sciences as hobbies, and their contributions to progress through their scientific hobby was often very considerable and in addition to their professional services. There was, however, nothing surprising in this. The modern sciences had come into existence and had grown up with modern medicine. They were, even a century ago, a united family of intellectual pursuits that had not yet become separated and alienated by the intensive pursuits of specialized interests. Even today some students in these fields aspire to maintain at least a formal contact with the widely scattered branches of the medical and basic sciences. I am of the opinion that the rising generation is, however, less successful, and less encouraged to attempt this, than the older generation was. This is undoubtedly the case because we of the older generation give them less encouragement and support than we ourselves received in our time.

Of course, it may be said that this disintegration is only a necessary part of the evolution of modern culture. However, the biologists have long taught that evolution and progress are not always synonymous. Likewise, specialization and progress are not always synonymous. The men of Babylon, as related in Genesis, achieved skills, but their approach to their goal was interrupted by

the curse of tongues, the lingo of specialists, if we may place an interpretation on this story suited to our own situation.

If this were all, the matter could easily be remedied. The serious thing that happened to these Babylonians was that in the course of their successes they lost an attitude to their own minds and achievements by which a good part of their very great accomplishments were obtained. This was lost to them and, eventually, to us, to whom it could have been transmitted if the gains made had been consolidated properly. No doubt similar catastrophic losses occurred again and again in the course of human history, especially before the manufacture of paper, and writing for preservation, became common practices.

The basic danger in uncontrolled specialization is a kind of conceit, by which we unconsciously hold that what we know and can do is important, and what others know and can do is of less importance. We as learned men, who know the hard road of broad and deep learning, a thing we could possess in common, lose sympathy and understanding of each other. Having lost that the unlearned readily conclude that we cannot be understood, because we do not even understand each other, and we come to a Babel of confusion. We lose our standing, our authority, our leadership and our opportunity to serve our social group effectively.

It is customary in reviewing human progress in respect to the fields of science and of medicine to emphasize the very great success obtained in the ferreting out of mysterious and unknown actions and principles. This is the obvious, the simple and clearly visible consequence of these efforts. Without this, the long struggle toward man's control and understanding of himself and his environment would, at most, be in its formative and preliminary stage. However, we have a good showing of results and now we may look at the matter to see how they were obtained. Here, again, the obvious aspect is the one discussed most frequently. We are told that by the integration of hands and mind man has elaborated the socalled scientific method, and that it is by this method that the conquests were obtained.

This is true, and would be an adequate statement if the scientific method were interpreted broadly and generously. Unfortunately, in present day teaching, we are likely to take a more narrow view. We supply the student with accurate directions for laboratory procedures, and with the exact statement of the conceptions we wish him to acquire, by an almost verbatim memorization process. We have made the word "method," in the phrase "scientific method," synonymous with the word "technique," and since a technique yields data, we supply the student with prefabricated techniques and data and deceive ourselves into thinking that we have taught him the scientific method. Thereby, because of the vast amount of detail we insist on transferring to him, we leave him little time or opportunity to make his own mistakes, to find blind alleys, to explore them, to retrace his steps, and, most important of all, finally to gather his courage and begin again. Yet we know that it took 5,000 years and a

multitude of men and mistakes of this sort to bring science as a whole to its present position, so that it can give accurate directions and valid instruction.

In all this, medical men played a large role. In achieving all this outward progress, studious men also did something to themselves inwardly, which must, in some degree, be recapitulated in the personal experience of every student, who is to be more than a scientific or medical technologist. Without this, our instruction becomes a scientific empiricism and the penalty for forgetting our detailed instruction becomes a scientific or technological helplessness.

Perhaps the nature of this obscure factor in the scientific method can be revealed best by reviewing briefly, the progress of medicine.

In ancient times, the conception that all sorts of objects, even ores and mines, might be infested with various types of demons was adhered to widely, if not universally. Both the regularity and the irregularity of behavior and action was thought to be controlled in some degree by these childish or even mischievous or malignant spirits. An important part of life involved learning how to propitiate and to control these demons, and in some fields it was not simple. By a curious inverse action, the practitioners of an art automatically selected themselves by their relation to the benevolent gods or saints of their arts. Those zealous in their devotion to them were most likely to be zealous in the details of their arts and crafts, and, therefore, most successful in their pursuit.

In medicine it was considered obvious that disease was due to the intrusion of demons, and this is a theory of disease widely if not universally held by primitive people. Moreover, it was also obvious that two procedures would be available for treatment: the use of nasty medicines coupled with the use of holy incantations or prayers. The rational hope was that between the two the demon would come to dislike his host as an abode and be caused to leave, with the consequent recovery of the sick man. So great is man's tendency to objectivity that in situations of clearly known cause, such as physical injuries, these two procedures were often not used. Thus in the Edwin Smith Surgical Papyrus the treatment of such injuries is objective, and free from procedures calculated to extrude demons. This document may have been first written about 3000 B.C., and may have represented a viewpoint that was already traditional at that time. For us, however, it represents the oldest beginnings of modern medicine. From then on we have had a gradual expansion of this island of objectivity to other aspects of medicine.

Without attempting to trace the stages and the progress of this advance, we can say that advance became rapid with the discovery of the role of microorganisms in many diseases, since the fruitful period of Pasteur. Still more recently, the demons of virus diseases, of vitamin deficiencies and other nutritional diseases, as well as hormonal diseases, have entered the range of the "materialization" of demons. These latter groups of demons are not fully conquered as yet, but the goal is in sight. In short, tremendous areas are conquered or in process of conquest.

But we may ask why was the fruition so long in coming? Why were 5000 years of known slow and laborious approach required?

The answer to these questions is that before the goal could be reached man, *i.e.* the earnest, studious, thoughtful man, had to learn how to transform himself and his offspring. He had to learn the kind of a world in which he was living, and the quality of his own mind. In the arts and crafts, he came to his destination sooner, because the skills and abilities required were not so great, the problems were easier and individuals possessing the necessary personal qualities were not so rare. In fact, when we look back, the problems of science and medicine present so many difficulties that it is surprising that men could have had the patience to continue to attack them generation after generation. There were so many intangible, invisible, inaudible and incomprehensible factors. For instance, suppose the ancients could have conceived that many diseases are due to living organisms which cannot be seen with the unaided eye, but that, with the help of a microscope, could be seen, described and classified, and so, of course, eventually put under control. With this preview, how long would it have taken to develop a satisfactory microscope? We do not know, but we do know that there is a large element of orderly development in scientific discovery and that progress in one field must wait for progress in another. Often this bottleneck is an idea, a method, a device developed in another field. This is the ripening of time, and at all stages of our history time is hard to ripen, although it was easier, it seems, when all scientists were still closely associated, as they were up to a century ago.

Gradually, about 1000 years ago, these students of the obscure came to be known as alchemists, because these studies were supposed to have originated in Egypt or Khem, the land of black soil. Thus, the blackness associated with the "black arts" was not at first due to soot from furnaces, obscurity of the operations, or wicked motives of the practitioners, although these were and even now are all associated with these studies, from time to time. Such studies were, at times at least, carried out in special kitchens, now known as laboratories. The skills developed here were applied especially to the metallurgical arts, and to the study and preparation of medicinal agents. Paracelsus, a great physician and himself an advanced alchemist, thought that no doctor should fail to prepare himself in alchemy, because the highest purpose of alchemy would be the preparation of medicines. For several hundred years after this time, many of the most notable chemists were medical men. We may mention only Paracelsus, Van Helmont, Boerhaave, Stahl, Jos. Black, Berzelius and Wöhler.

Finally, these devotees of the "black arts" were openly supplied with laboratories, in which they made an infinite number of new tasks for themselves, and in which they laid the basis for the control of the circumstances of life that we call modern civilization. In our time, the descendants of just one branch of the "genealogical tree" of these earnest devotees are found everywhere controlling water supplies, sewage disposal, the breeding places for mosquitoes, and many other tiresome inspection services in relation to food and drugs.

They, too, have established the strange rigamarole of the hospitals, operating rooms and diet kitchens. To the uninitiated these processes have the quality of an expensive ritualistic religious fanaticism. However, as of old, when these things were still thought to be in the control of lesser gods, the penalty of carelessness, or indifference in the service of the gods of hygiene and of health is just as severe as ever, even though this service is now no longer performed at a temple or shrine, but rather in a laboratory, the workshop of the scientist.

The circumstances of disease have not changed. The change has been achieved in the doctor himself. Centuries of study and research have produced a profound self disciplinary change in the doctor. He has learned how to evoke and maintain the necessary routine procedures for his and our safety, and has enlightened society sufficiently to obtain the money and men necessary for these purposes. In the mastery of disease and pestilence the doctor learned long ago that he must first transform his own ignorance into enlightenment, for here, too, the blind cannot lead the blind. This acquisition of self discipline, this inner transformation in the process of enlightenment, is the very core of our modern culture and is the great miracle of human history. It is the essential human factor of the scientific method.

It is this inner transformation, this change of viewpoint concerning himself, and the use of his own mind in the acquisition of sensory data and their integration and organization within his own mind, that must be experienced by every student in the modern world, and especially by every medical student. The doctor is still the only scholar and scientist who has large and intimate contacts with all the population. He is still the radiating center, the missionary of man's salvation by the sweat and toil of self denial. He is the disciple of science who must interpret all of the commandments of modern science: the "thou shalts" and the "thou shalt nots," by which civilization is to be sustained, and by which alone it can be hoped to advance. It is he who teaches the diabetic, the tubercular, the heart patient, the expectant mother, the parents and their children disciplinary processes by which they may obtain such security of physical existence as they may expect to enjoy. To these he must transmit the spirit of self control that he has in his own way experienced in other directions.

It is not necessary to elaborate the point of this essay any further. Once it is pointed out again, the central idea is obvious. The medical student in the course of his studies must, if possible, undergo an inner moulting process by which he acquires a disciplined mind and body—if he is to play the role in society that he should. If we, as his teachers, fail to assist him in this process, as we for the most part were assisted in our time, he must contrive to accomplish the change in some other way.

The Class of 1926 University of Pennsylvania School of Medicine Sixteen Years After Graduation

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Of the 132 persons who received the degree of M.D. on June 16, 1926, 128 are in practice; two are dead; two are not in practice. According to the 1942 Directory of the American Medical Association, 28 voluntarily list no medical specialty following their names; 100 admit some connection with a chosen field. Of these 100, it appears obvious that 21 combine general practice with a specialty secondary to it, while 79 limit their practice to a specialty. Of the 79 medical specialists, 42 have been certified by various American Boards and 37 have not been certified but are listed as starred specialists in the American Medical Directory.

GENERAL PRACTICE.—As stated, 29 admit general practice with no reservations, while 20 others admit it in conjunction with a specialty. Of these latter—10 with surgery, 3 with obstetrics, 2 with pediatrics and one each with otolaryngology, tuberculosis, industrial medicine, neurology and neuropsychiatry. Thus, a total of 49, or 38 per cent of the 128 in practice, are in general practice in the broadest sense. Three of the 8 honor students were in this group.

INTERNAL MEDICINE.—This was the leading specialty both in numbers and in diplomates of the American Board. There are 19 internists, 11 of whom are diplomates. Of the 8 students who graduated with honors 2 were internists, one a professor of internal medicine and one associate clinical professor of medicine. Three are assistant professors of medicine, one is an associate in medicine and one is an instructor in medicine.

SURGERY.—There are 15 surgeons, 6 certified by the American Board and 9 not certified. There is one clinical professor of surgery, two associate professors of surgery, one assistant professor of surgery, one assistant clinical professor of surgery, one instructor in surgery and one assistant instructor in surgery. The 10 others who listed some surgery in their practices have been grouped as general practitioners above.

OBSTETRICS AND GYNECOLOGY.—Of 8 specialists, 6 are certified by the American Board. There is one associate clinical professor of gynecology and

obstetrics in this group and he was, incidentally, one of the eight men who graduated with honors. This specialty ties with ophthalmology in second place with 75 per cent of its members certified by the American Board.

OTOLARYNGOLOGY.—Of 6 specialists, 5 are certified by their Board, the highest percentage of any specialty. Two of these were among the 8 who graduated with honors. One is a professor of bronchoesophagology and two are instructors in otolaryngology.

RADIOLOGY.—Of 5 specialists, 3 are Diplomates of the American Board of Radiology. All have hospital appointments. One is a professor of radiology and another is an associate in radiology.

PUBLIC HEALTH.—Five men are in public health positions, one in the west, one as an associate in public health in a middle Atlantic medical school and three in the South.

OPHTHALMOLOGY.—Of 4 specialists, 3 are certified by the Board. None were found with faculty positions in ophthalmology.

PEDIATRICS.—The 4 specialists show 2 certifications by the American Board. Three of the 4 hold faculty positions, one clinical assistant professor of pediatrics, one assistant professor of physical diagnosis and pediatrics, and one instructor in clinical pediatrics.

PATHOLOGISTS.—There are four men in this group, one certified pathologist, one certified clinical pathologist and two uncertified clinical pathologists.

UROLOGY.—There are 3 urologists; 2 are certified. One associate in urology is in this group.

Three combined ophthalmology with otolaryngology without certification in either field.

One certified neurologist is a professor of neurology; one certified orthopedist and one uncertified anesthetist complete the group of specialists.

Of the 128 practicing physicians, 27 hold positions on the faculties of approved medical colleges, approximately one-fifth of the class, with 5 professors, 4 associate professors, 8 assistant professors, 4 associates, 5 instructors and 1 assistant instructor.

The home addresses give a geographic distribution of Pennsylvania, 53; New Jersey, 11; California, 10; North Carolina, 8; Wisconsin, 6; Massachusetts, 5; Virginia, 4; 2 each in Florida, Georgia, Utah, District of Columbia, Ohio, West Virginia, Minnesota, New Hampshire, Hawaii; one each in New York, Mary-

land, Missouri, Alabama, Connecticut, Illinois, Washington, Colorado, Montana, Delaware, Tennessee, Louisiana, Indiana and Michigan. Panama was the only foreign country, with one member. One missionary member left Thailand just in time to take up residence in Philadelphia.

Of the 7 women members of the class all married after graduation from medical school.

No members of the class have so far died of disease. The two deaths were both suicides. Contrary to the beliefs of some psychiatrists, the two suicides were not brilliant members of the class.

Of the two members not in practice, one is the director of a large coal company and the other is a housewife.

A number of the male members of the class are serving with the armed forces of their country mostly in hospital units but the data are not accurate, and if they were, it would not be advisable to publish them. Nearly every member of the class has reached the age of 40 years and all appear to carry heavy responsibilities in the prime of life.

CONCLUSIONS

1. One-fifth of the class profess to be general practitioners while actually three-eighths of the class practice general medicine.

2. Five-eighths of the class are specialists and more than one-half of these have been so certified by American Boards.

3. One-fifth of the class serve on the faculties of approved medical schools.

A Study of Wartime Medical Students and Their Problems

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Present world affairs surround the student who is engaged in the task of training for a place in the field of medical practice with a bewildering multitude of confusions, dilemmas and unusual problems to be solved. Many who face the current problems of living, training and planning for a career in the medical profession go no farther than to locate and then to apply the temporary expedient to meet the demands of oncoming emergencies. Unfortunately, the overall problem for medical students is not that simple.

At this very moment our nation is organizing all its resources for ultimate victory for our armed forces. Medical people are increasingly finding a larger part in the total war effort. As we face the deep significance of our task we believe it imperative that all medical students and all administrative leaders with responsibility for present day training procedures have at their command exact and valid information concerning some of the many problems encountered by students. Research studies which are planned carefully, executed painstakingly, and interpreted wisely in the light of present conditions are regarded as a fundamental need. The medical student's problem clinics for 1942 were planned for the specific purpose of meeting this need. The general theme of this year's clinics was, "Future?—Prognosis," by wartime medical students.

BACKGROUND OF THE CLINICS

For a number of years, in the West Side Medical Center, there has been carried forward a project in the study of medical students' problems. These studies resulted in the creation of the Medical Student's Problems Clinics. A significant fact about these studies is that they have been student sponsored. The first year group developed a special technique for gathering essential information regarding students' personal problems. The second year, the research group improved the practices of the previous year and then devised a survey instrument in the form of a "problems locator." After checking and testing carefully the instrument and accepted practices, considerable data were gathered. During the years that have followed, research groups have improved both the techniques and the survey instruments and have continued gathering information until now there are on hand over 10,500 records with the responses and essential data concerning students and their personal problems.

THE SURVEY INSTRUMENT

The survey instrument was organized so as to present information in basic areas of student concern. In each area a series of questions helped to reveal certain attitudes and interests of students. These questions, in most instances, were scattered so as to encourage each student to express his belief, attitude, or interest without being influenced by other related questions. Each student was asked to

check each question and to write in additional reactions whenever desired. By use of this and other devices it was possible to analyze the replies and to determine the reliability, or the insincerity of the responses.

Through a series of meetings conducted with carefully planned interviews, and with the checking of certain questions against pre-determined test items of expression there was provided a basis for insuring dependability in evaluating the student's true belief and underlying attitudes. If there was evidence of "horse play" or indifference, this was easily detected in the total picture. The success of this undertaking, in a very large measure, has been due to the fact that from the beginning it has been student sponsored, student motivated and student implemented.

ADMINISTRATION AND GUIDANCE

The administration of the 1942 clinics was delegated to a clinic steering committee composed of key students and leading faculty representatives from the several colleges and medical institutions located in the Chicago Medical Center. The Clinic's steering committee consisted of the following students and faculty members: Dr. R. R. Cross, Robert Foulke, Eugene Stegmeier, John Moss, Robert Smithwick, Robert Lafler, Ruth Lindgren, Evannah Larson, Eva Olson, Dr. R. Grisson, Robert Smith, Fred Lehning, Bennie Binderman, Eunice Thompson, Muriel Whiting, Doris Jean Lewis, Ida Benson, Julia Ball, Hilbert Jebelt, Eb King, Bert Moss, Bill Wall, Albert Victor, Dr. Austin, Ed Posner, Grace Waxel, S. H. Frazier, Jean Austin and Velma Marie Davis. More than 3,700 students responded to the Problems Locators and shared in the studies.

In the work of developing the studies, many consultations were held with outstanding leaders in the field of medical training and professional practice. The seasoned medical practitioner, the recognized teacher, and other competent leaders studied the key problems growing out of the students' findings and then provided guidance and vital information for the final study of the major problems. Those who have assisted in the clinic sessions and who have advised with the groups include: Dr. Harry Overstreet, head of the department of psychology and philosophy at the College of the City of New York; Dr. Raymond B. Allen, executive dean University of Illinois Colleges in Chicago; Dr. R. C. Buerki, director of hospitals, University of Pennsylvania; Dr. David J. Davis, dean of the University of Illinois College of Medicine; Dr. Howard Marjerison, dean of the University of Illinois College of Dentistry; Dr. Morris Fishbein, editor of the Journal of the American Medical Association; Dr. Earl R. Serles, dean of the University of Illinois College of Pharmacy; Dr. Howard Sheaff and Dr. Harry Oberhelman, Rush Medical College; Dr. Thesle T. Job, Loyola University School of Medicine; Dr. George E. Wakerlin, Dr. Wm. H. Welker, Dr. F. L. Lederer, Dr. Geo. B. Hassin and Dr. Wm. H. Browne, University of Illinois College of Medicine; Dr. John J. Sheinin, dean of the Chicago Medical College.

Much credit is due these men and the administrations of the schools who kindly gave permission for the studies in their institutions. Appreciation is expressed for the fine cooperation shown by the many faculty members who

cheerfully gave consent for students conducting the survey to appear before classes. Distribution of the Problems Locator to so many people would have been impossible had it not been for the generous help and team work of a large number of interested students who helped in the drafting of the questions. Also, the many who gave freely of their time and efforts in the circulating and collecting of the returns.

OBJECTIVES FOR THE CLINICS

1. Search for the facts, wherever they may be found, wherever they may lead.
2. Provide study and discussion on the problems of medical students in war times.
3. Cooperate with and encourage faculty members, student leaders and all students, in finding the most reliable information bearing on the correct situation.
4. Analyze and evaluate the thinking, the assumptions, and the situation facing students.
5. Give attention to the local and national situation with concerns that see beyond individual problems and needs.
6. Aid in the creating of avenues of approach toward the problems of common concern with medical students as specifically mentioned in the resolution on medical education passed at the 87th Annual Session of the American Medical Association with emphasis on social fitness, adaptability, motivation, personality and character.
7. Specifically, make easily accessible, through the Clinics, the latest and best information on student opinion as revealed in the 1942 Student Problems Poll.

STUDENT PROBLEMS LOCATOR

Please do not sign your name! Use of this instrument is a serious attempt to gather information regarding what professional students do and think. The answers to these questions, when combined, will provide a substantial basis for the discussions of the Professional Student's Problems Clinics. *Please be honest. In no way will there be any effort or attempt made to identify you with your answers.* Your help is greatly appreciated. Kindly check ( ) the answer you prefer.

1. Sex Male ( ); Female ( ).
2. Age (25.5) in years ave. age in total.
3. Married ( ), Single ( ), Divorced ( ).
4. Medical ( ); Dental ( ); Pharmacy ( ); Embalming ( ); Nursing ( ); Business ( ); Technical ( ).
5. Do you feel that you personally are in need of more cultural training and background to equip you for the practice of your profession? Yes (38%); No (62%).
6. Outside of studies and sleep what are your principal activities? Check the ones you have attended in the order of their frequency. Place the number in the brackets, 1 for most often, 2 next most often, 3, etc., until 10 in the least or not attended.

Movies	(74%)	Plays and operas	(17%)
Church	(3%)	Reading of fiction	(35%)
Concerts	(13%)	Burlesque shows	(1%)
Athletic activity	(44%)	Gambling joints	(1%)
Night clubs and taverns	(16%)	Other	( )
Lectures excluding schools	(8%)		

7. How do you prefer to attend these? Alone (9%); with own sex (18%); with opposite sex (73%).

8. What is your favorite magazine? Life (16%); Sat. Ev. Post (5%); Reader's Digest (33%); Liberty (3%); Esquire (13%); Colliers (1%); Journal of Am. Med. Assn. (23%); Scribner's (1%); Harper's ( ); Ladies Home Journal ( ); Good Housekeeping ( ); American ( ); Other ( ); J.A.D.A. (3%).
9. Do you have a college degree? Yes (39%); No (61%).
10. Does the curriculum leave you enough time for social activity and enough leisure time to pursue other interests? Yes (33%); No (67%).
11. Do you depend on religion for personal satisfaction? Yes (22%); No (78%).
12. How do you attend church or religious meetings? Regularly (18%); Occasionally (34%); Never (48%).
13. Since entering professional training, how has your regard changed toward God and the church? Greater belief (12%); Less belief (39%); Same (49%).
14. Regardless of the financial status of the student at what time is marriage advisable? First two years (9%); Last two years (17%); Internship (14%); Starvation period (5%); After graduation (55%).
15. Are you prejudiced against Jews? Yes (44%); No (56%).
16. Are you prejudiced against Gentiles? Yes (7%); No (93%).
17. Do you carry crib notes to exams? Yes (27%); No (73%).
18. Is a professional student justified in accepting financial support from his wife? Yes (15%); No (85%).
19. Do you work outside? Yes (56%); No (44%).
20. Do you feel that outside work in moderate amounts is a handicap? Yes (59%); No (41%).
21. How would you rate nurses morally as compared to other groups of women? Lower (13%); Equal (56%); Higher (31%).
22. How would you rate male professional students morally compared to other groups of men? Lower (9%); Equal (82%); Higher (9%).
23. How is your physical condition and health now as compared to how it was when you entered the professional schools? Better (24%); Same (26%); Worse (50%).
24. Do you attend classes when attendance is not taken? Yes (95%); No (5%).
25. Do you use alcohol as a beverage? Moderately (53%); Not at all (39%); Excessively (8%).
26. Do you indulge in extra-marital sexual relations? Yes (37%); No (63%).
27. Have you ever had a venereal disease? Yes (1.4%); No (98.6%).
28. Do you use contraceptives personally? Yes (34%); No (66%).
29. What is your greatest problem? Finance (21%); Family (5%); Studies (36%); Recreation (5%); Romance (11%); Health (18%); Professors (2%); Other (2%).
30. Do you think it advisable that the U. S. government undertake (a) Health Education of masses, (b) specifically dental hygiene, (c) venereal disease control, (d) nutrition, and (e) mental hygiene?

Yes:			No:	
	a. ( )			a. ( )
	b. ( )	72% voted		b. ( )
	c. ( )	Yes on this.		c. ( )
	d. ( )			d. ( )
	e. ( )			e. ( )

31. Could you do as well without church? Yes (62%); No (38%).
32. Do you believe in rehabilitation of health of draftees rejected by the U. S. Army? Yes (91%); No (9%).
33. What is your most important problem arising from the extension of your professional training over a period of 12 months each year? Finance, studies, health, romance, recreation.....
34. How much money do you spend in the average week for food and lodging? $11.25, an average per person, per week.

INTERPRETATION OF THE SURVEY

From the entire body of information, significant values were interpreted in the light of five basic elements previously set forth in a resolution on the education

and training of students at the 87th Annual Session of the American Medical Association. The five basic elements are character, personality, social fitness, adaptability and motivation. An interpretative study of the 1942 poll is herewith presented.

The attitudes taken toward the attainment of more culture are shown by question 5: "Do you feel that you personally are in need of more cultural training and background to equip you for the practice of your profession?"

When these attitudes are studied, they fall into two important divisions: Positive (favorable) and Negative (unfavorable) attitudes toward the basic issues of concern. Throughout the study, the negative attitude is much more pronounced than the positive attitude. The positive responses were so few and far between as to seem almost non-existent at times in the tabulation of results in certain areas.

Evidently the belief that professional students are eager for more culture does not check with facts, 38 per cent said "Yes" and 62 per cent said "No" to that question.

The replies which indicated certain popular recreational interests were the result of question 6: "Outside of studies and sleep what are your principal activities? Check the ones you have attended in the order of their frequency. Movies, church, concerts, athletic activity, night clubs and taverns, lectures, excluding schools, plays and operas, reading of fiction, burlesque shows, gambling joints and others."

The attitude toward recreation may lack some of the old fashioned ideas but is never the less strongly indicated, by these 20th century young people.

The activities which appealed to grandfather and grandmother and even mothers and fathers are apparently passé today. Cynicism and skepticism are reflected generally throughout the entire study and one catches a glimpse of it here.

Students are not willing to accept the traditional answers and are quite frank in making known the fact: 16 per cent frequent taverns and night clubs and the high percentage of 74 per cent go to the movies.

Question 7 shows a strong desire for companionship with those of the opposite sex: "How do you prefer to attend these: Alone; with own sex; with opposite sex?" Lighter forms of recreation and desire for companionship with the opposite sex appear as one strong source of motivation underlying the general interest of these students.

The next indication of prevalent attitudes toward culture was shown by question 8: "What is your favorite magazine: Life; Saturday Evening Post; Reader's Digest; Liberty; Esquire; Colliers; Journal of the American Medical Association; Scribner's; Harper's; Ladies Home Journal; Good Housekeeping; American; and others." It is interesting to note that only a small percentage read the weightier and more academically written journals and magazines.

It is quite evident that a large percentage of the students read for lighter

diversion and not in pursuit of general knowledge. When one considers the heavy study schedules of these students and takes into account the amount of required reading of technical textbooks the above may be understood more easily.

One glaring weakness in all around education and training of these students may be recognized at this point. The basic literature of a sound culture is so widely neglected by the majority during the four or six years of their professional training.

Experience shows that this is a deficiency that rarely ever is made up in later years. It might be said that these advanced students read all literature more intelligently, but when one reflects on the general educational background of the professional student, that is open to serious doubts. At least one significant fact stands out: a small percentage read literature of historical and lasting value outside of the required technical texts. And that may well be regarded as a serious problem of professional education. By training and experience, the medical student finds it increasingly difficult to adapt himself to general cultural interest and his choice of reading matter is one more indication of his difficulty in solving the problems of adaptability.

Question 9: "Do you have a college degree?" The responses on this question serve as a good background on studies and seek to evaluate the total response to the whole poll. Their personality, social fitness, adaptability, character and motivation all find significance in the general educational background of those who are here regarded.

Question 10: "Does the curriculum leave you enough time for social activity and enough leisure time to pursue other interests?" serves to emphasize the time factor from the student's point of view. When regarded as an attitude, it lends significance to the usual time worn comment: "I haven't time," and, "I simply must go and study now." At least it indicates that professional students are very time conscious.

Questions 11 and 12 on religion and the church gave insight into the attitude of these students toward this much regarded field of human interest. The returns strongly supported the general contention that most professional students simply are not interested in the usual church activities and the customary services of worship. The questions were: "Do you depend on religion for personal satisfaction?" and "How do you attend church meetings: Regularly, occasionally or never?"

Even more significant than this fact, however, are the responses to question 11: "Do you depend on religion for personal satisfaction?" indicated so little feeling of need for religion. This might be regarded as another bit of evidence to uphold the belief held by some educators that most students have had so little experience with religion that they can hardly be expected to know whether they do or do not feel a need for it. Certainly, it must be concluded that religion, as a source of motivation, is not to be regarded as a strong factor.

The comparatively high percentage of responses indicating a less belief in

God resulting from question 13: "Since entering professional training, has your regard changed toward God and toward the church? Greater belief, Less belief or Same," is not surprising to those who have watched and studied intimately students of the healing arts over a period of years. It appears as a natural reaction. Real significance may be found in the fact that it only tends to emphasize the problem that faces the serious minded administrators of professional education. The 39 per cent response indicating a less belief and 49 per cent showing same may be interpreted as symptoms of a maladjusted youth.

When one studies the data gathered from question 14: "Regardless of the financial status of the student at what time is marriage advisable? First two years, last two years, internship, starvation period, or after graduation?" and then compare this with the responses to question 27: "Do you indulge in extra-marital sexual relation?", he faces immediately one of the most important problems that these students have to solve. And the magnitude of the problem is further sensed as one includes the findings to question 2 which shows the average age of these young people to be 25.5 years. With the biological mating age for young people in this part of the world averaging 19 years for females and 21.6 for males, adaptability and personality growth find a real problem in this area of response.

Responses to question 15: "Are you prejudiced against Jews?" and question 16: "Are your prejudiced against Gentiles?" when compared with the results gained from the same questions in studies of former years bring to light a trend that must be regarded by some as an ominous threat to our American way of life. Race hatred and interference, manifest in other parts of the world, may be reacting close to our own doorstep. If this is to be regarded as a factor of motivation, it will explain certain acts of hostility encountered in the medical center.

The 27 per cent who responded to question 17: "Do you carry crib notes to class?" must be regarded as worthy of at least one merit for their show of honesty on this occasion.

The replies of the 73 per cent, however, are hardly in keeping with the display of honor and chivalry indicated in the 85 per cent response to question 18: "Is a professional student justified in accepting financial support from his wife?" Question 19: "Do you work outside?" provides insight into a situation that grows more and more acute as the professional student continues his technical training. With study schedules already heavy, the problem of finding the financial wherewithal to continue only increases with the added years spent in gaining a professional training. The seriousness of this situation is well reflected in the attitude of the 59 per cent who responded to question 20: "Do you feel that outside work in moderate amount is a handicap?" Here, again, we find another factor in motivation.

Questions 21 and 22: "How would you rate nurses morally as compared to other groups of women?" and "How would you rate male professional students morally as compared to other groups of men? Lower, Equal and Higher?" For those students who are accustomed to thinking in terms of technical subjects as

related to biological and physical sciences and who spend so many hours in contact with the human body, the subject of morality is more real than academic. The fine lines of human conduct as drawn by professional religionists and other interested moralists rarely parallel those of these students. Here, then, we hazard to state, is an unsolved problem challenging the best leadership of the churches of all faiths. The personality and character make-up of professional students finds real meaning at this point.

SOME STUDENT PROBLEMS

From the total responses of the students, the following specific problems were gathered. They are here presented because the frequency of their occurrence and the emphasis placed on them by individuals seem to mark them as matters of great concern in the daily life of large numbers of students.

In the study of some items, one finds not a single problem but a nest of problems that may well engage the interest of the college administration and other allied groups.

1. Becoming too critical of myself. 2. Problem of routine in my life. 3. Lack of free time. 4. Dependence on parents, family, relatives. 5. Fatigue. 6. Monotony. 7. Lack of funds. 8. Question, "What is there to do about marriage?" 9. Clothes. 10. Sleep. 11. How to keep my grades up. 12. Being away from my children. 13. Studies. 14. Exhaustion. 15. Not enough vacation time. 16. How to graduate without a breakdown. 17. Rest and relaxation. 18. Examinations. 19. To hold back what I'd like to say when people make me mad. 20. To be able to tolerate some of my incompetent professors.

CONCLUSION

War represents a period of change. In spite of the disasters which all wars bring, certain good comes out of them. War may stimulate advancements. For example, since the last war, university education has improved and developed to a very high plane. The radio and other means of communications have made remarkable advancements. The same holds true in medicine and dentistry. Syphilis, nutritional disorders and many other diseases are on the decrease due to our superior preventive measures and treatment.

Since the last war, dentistry has advanced. For example, novacaine has come into widespread use. Techniques have been simplified and improved as well as the treatment and prevention of oral disease.

During this war advancements have already started. For example, the sulfo-derivatives have been discovered and are being used extensively. The irony of this is that the Germans made this discovery.

Some major concerns of medical people are:

1. Disease will always be present and this is our problem.
   (a) We must deliver more service to more people to the advantage of the patient and the medical and dental personnel.

(b) If we can control how service is to be presented, the economics will take care of itself. The formula by which this is to be presented is a question. The best answers we can give at the present are prevention and the maintenance of high standards of education.

Prevention should come under two headings: (a) Educational and (b) treatment. Preventive education should start in the schools with children. They should receive training in mouth as well as body hygiene.

Treatment should also start with children. This will prevent more serious dental and medical disorders later in life. As far as adults are concerned, a 100 per cent plan of treatment, particularly from the dental standpoint, is impossible due to the lack of dental personnel. The health group dentists, physicians and nurses represent a small group of the total health workers, one and one-half million or 10 per cent of the total group. This small group is the source of information as to cause and prevention of disease which others can apply. For example, discoveries such as purification of water and pasteurization of milk can be applied by many people, thus preventing disease. This is a good point of favoring high standards of education. Universities are the source of research and graduating well qualified men gives better opportunities to get at the basic cause of disease.

After this war certain dangers are involved. First of all, comes the danger of too much of a materialistic attitude. Quality of work may be poor with the possibility of some loss of initiative. Another problem is the still greater need for dental and medical personnel. Many men will remain in the armed forces and some may stay in foreign countries. Probably few will remain in foreign countries, due to different cultures and the nationalistic attitude of the foreign countries. However, there certainly will be need for more doctors in most of these countries.

The question of socialized medicine and dentistry was discussed. Those favoring the idea maintain that this would enable treatment of greater masses of people at less cost. Also, after the war people will be financially weak, so that private practice would be bad. Socialization offers more security to the professional man. The arguments against socialization seemed to outweigh those for socialization. This group maintained there would be a sacrifice in quality of professional work. Also there is danger of political influence. As far as the financial end of it goes, we are all on a comparative basis. If all others are broke, what's the difference if we are too? Further, there would be a loss of initiative particularly along research lines. From the dental standpoint, we do not have the dental personnel and equipment necessary to treat the masses.

Obviously, the formula by which treatment is to be given to the masses is still a question. Unless a plan can be worked out to give better treatment to the masses at less expense and also favor the medical and dental personnel, we cannot favor it.

At any rate, the idea of prevention and maintenance of high standards of education as an effort to get the source of the trouble is a good one.

TABLE 1.—ROMANCE—FINANCE—CHANCE: A CHART OF THE CLINIC'S FINDINGS (NORMAL TIMES)

Essential Factors	Basic Issues	Standards	Related Experiences
1. ROMANCE Natural desire.	How to select mate.	Appearance, abilities, capabilities.	Some professional student marriages fail in later years due to failure of wife to keep pace with husband's advancements.
	Reproduction	Self preservation.	
A. Biological need. Medical training period often necessitates delay of marriage far beyond biological mating period.	Adjustment	Adjustment easier with younger persons. Both parties must adjust.	Marriage must be happier and more enduring with children.
B. Mental need. Need for companionship with one of the opposite sex.	Courtship	Long enough to be fully acquainted, and to begin adjustment; for ideal romance.	Younger marriages and with common experiences are more successful. "Third party" usually not important.
C. Emotional need. Desire for home, family and social standing.	How find time for study and still assume home duties.	Balanced lives.	Individual traits are expressed in longer courtships. Longer courtships usually make happier marriages.
2. FINANCE Medical training period often necessitates delay of marriage far beyond biological mating period.	Male predominant. Consider male's ego. However, love brings equality and mutuality and self-respect.	Male is the traditional provider. Sharing brings responsibility.	In general, traditional way is best with male predominant. Exceptions: War School
Cost of professional training great; cost of marriage additional burden on student.	Establishment of home and professional practice.	Wife may work and help finance home. Make home when husband is established in practice.	Modern version: Wife in business no longer restricted to the home.
3. CHANCE	Marriage—Home—Family?	Happiness? Social—professional status. Security—Stability	Marriage brings greater chance for social, professional success. Never totally eliminated.

TABLE 2.—ROMANCE—FINANCE—CHANCE: A CHART OF THE CLINIC'S FINDINGS (WAR TIME)

Essential Factors	Basic Issues	Standards	Related Experiences
1. ROMANCE			
Natural desire for marriage continues in war time. While war demands restricted and controlled social life.	Wait until war is over—maybe too late for some.	Marry now while you are in love.	Many war marriages have failed.
Emotional need is greater.	Need for moral support is greater in both male and female.	"Happiness while we may" attitude predominant.	50-50 chance for happiness. Women take the chance. They favor marriage without financial stability in wartime.
Excitement and tensions cause hasty decisions.	Pre-marital experimentation.	Must win war, cost what it may.	Pre-marital experimentation costly in the end.
2. FINANCE			
Female responsible for home.	Female often maintains home and family.	Reversal of social standards in wartime.	Adjustment for both needed after war: financially—emotionally—mentally, etc.
Extension of school season from 9 months to 12 months eliminates usual opportunities for summer earnings.	After the war is over, what then? Shall wife work to provide income to help mate through school?	Moral standards are relaxed.	In past a lower standard of living, morally, economically.
3. CHANCE	What is the chance for me? Shall I take the chance now?	Much greater chance incurred because of postwar adjustment.	Opportunities for marriage increase. Chance for successful lasting marriages decreased.

The use of this charting device enabled students and their leaders to bring to a focus some of the many different elements inherent in the three major problem areas. This resulted in a clearer understanding of the situations and provided a more orderly approach in the discussions. Space does not permit a complete reproduction of all the charts nor all the information on any one chart.

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Licensure Statistics for 1942

The *Journal of the American Medical Association,* May 8, 1943, publishes its annual review of licensure statistics for the year 1942.

Medical schools will be interested to note how their graduate fared in this test. It must be pointed out that the failures do not necessarily represent the like number of examinees. One graduate may account for more than one failure by taking the examination in more than one state.

For all approved medical schools in the United States, the failures amounted to 2.4 per cent. Twenty-eight medical schools are reported as not having had any failures. These schools were represented by 1,838 examinees. It is not stated whether there were any multiples. Fourteen schools had more than 5 per cent failures. Of that number, three schools had more than 10 per cent failures—one of these with 18.3 per cent, the highest percentages of failures. Twenty-four schools had less than 5 per cent of failures.

The school with the highest percentage of failures is charged with 153 examinees of whom 28 failed before 16 examining boards. New York and Pennsylvania accounted for 22 of these failures; Massachusetts for 4; California and Florida, one each.

A school with 11.4 per cent had 44 examinees, five of whom failed. The third school with more than 10 per cent failures (11.1%) is charged with one failure among 9 examinees. In this instance, the percentage of failures is deceptive unless one knows how many examinees are represented. In two other instances with more than 7 per cent failures, 8 failures (9.8%) occurred among 82 examinees (all in the home state of the school), and 4 failures (9.1%) occurred among 44 examinees (3 of these in the home state).

Three Canadian medical schools, with 18 examinees, did not have any failures.

Medical schools should check on these returns, if they have not already done so, to ascertain whether the failures reported represent individuals or not. It is recalled that in one year, one graduate failed in five states and accounted for all the failures (20.0%) charged against the school from which he graduated.

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The Cleveland Meeting

The fifty-fourth annual meeting of the Association of American Medical Colleges will be held in Cleveland, Ohio, October 25, 26 and 27, 1943. Western Reserve University School of Medicine will be host. Hotel Statler will be headquarters.

It is planned to have the program for this meeting consider topics of special interest to medical colleges at this time. Therefore, it will be largely a "war" program. Postwar medical education will also be discussed, thus preparing the way for what medical colleges will be expected to do after the war to complete the cycle of education for those for whom it was interrupted by the war. It is likely that the specialties in medicine will demand a large share of attention. The Advisory Board for Medical Specialties has already considered this item. The effects of acceleration on curriculum, students and faculty will by the time of the meeting be more apparent than they are now. In some medical schools students will have been exposed to acceleration for three academic years; in most schools, for at least two academic years.

Deans will also want to know about the general over all picture of the Army and the Navy specialized training programs which will be in operation at that time and from which important observations may have come. This meeting is the appropriate time for the discussion of these and other related problems because the deans of all the medical schools will be present and will have an opportunity to exchange views and experiences. Attendance at this meeting is not restricted to deans and members of the faculties of medical schools in membership in the Association. Any one who is interested in or who is concerned with medical education in any manner is most welcome to attend and to participate in discussions.

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Internships

A joint meeting of committees of the American Hospital Association, the Council on Medical Education and Hospitals of the American Medical Association and the Association of American Medical Colleges, appointed to discuss problems connected with internships met in Chicago, June 5, 1943. It was the consensus of this group that the length of the internship should not be less than twelve months. The committee was aware of the fact that in Canada the internship has been reduced to eight months and that, by special legislation, the State of Pennsylvania has set nine months as the acceptable internship. In order to meet the requirements of the Army and the Navy, interns serving in Pennsylvania hospitals must seek a three months' appointment elsewhere. Since most medical students in Pennsylvania will, doubtless, be in the Enlisted Reserve Corps, they will be confronted by the problem of finding two hospitals in which to serve a twelve month internship—nine months in one hospital and three months in another hospital. The Pennsylvania law does not permit a longer intern service than nine months. It is reported that the State Board of Licensure will assist interns in finding a satisfactory three months internship to meet Army and Navy requirements which are also the requirement of all other state licensing boards.

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Effect of Acceleration

One dean makes the following comment: "As yet there is no appreciable drop in scholastic achievement. However, one begins to note signs of fatigue, both among students and faculty, and one cannot help feeling some apprehension for the maintenance of prewar educational standards through several years of continuous session." How many medical schools have made like observations? This is an important matter. The health of the students is involved. Will the tuberculosis rate increase? Will faculties be able to hold out? The difficulty of securing competent instructors to take the place of faculty members who have joined up is larger than appears at first count. There must not be any let down in the quality of instruction nor in the ability of students to absorb that instruction—but a physically handicapped student cannot keep up the pace set by acceleration. With only four weeks of rest in each calendar year, for three years, there is ample cause to worry about what may happen. The supply of competent physicians may be reduced considerably by illness. Then, what?

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Tropical Medicine Fellowships

It has been reported previously that the John and Mary R. Markle Foundation has underwritten fellowships for the study of tropical medicine in the Army Medical School and the Tulane University of Louisiana by a grant of $35,000. A second grant of $35,000 is intended to defray the expenses of fifty (50) fellows who will be assigned to field work in tropical diseases in hospitals of the United Fruit Company situated in Costa Rica, Guatemala and Honduras.

Five classes have been assigned to the Army Medical School with a total of forty-six (46) fellows; three classes were assigned to Tulane, with a total of thirty-nine (39) fellows. Two classes—

comprising eight men each—have been assigned to Central America. More will be assigned later. The course at the Army Medical School and at Tulane was of two months' duration; the course in Central America is of one month's duration and is actual field experience.

Sixty-one medical schools of the United States and Canada sent representatives to the Army Medical School and to Tulane. Thirty-seven schools sent only one fellow; twenty-four schools sent two fellows, making a total of eighty-five instructors in these sixty-one schools who were given an opportunity to take an intensive course in the study of tropical diseases. Nineteen schools in the United States and two schools in Canada did not send a fellow to either of these two courses.

The eight fellows now in Central America come from seven schools, one school sending two fellows. The eight fellows who will make up the July class come from eight schools. In each group is one fellow from a medical school not being represented in the Army and Tulane classes. All fellows received travel expense and maintenance.

This was a marvelous opportunity to become well grounded in tropical diseases through the aid of men who know tropical diseases from a long and varied experience. The opportunity in Central America is an experience with persons afflicted with these diseases, thus, first hand experience in surroundings in which they are more or less rampant all the time. The instructors are men of experience in handling tropical diseases having rendered this service to the United Fruit Company for a long time.

The Markle Foundation, and the United Fruit Company, have done a splendid job in making it possible for instructors in medical schools to get an experience which they could not have had otherwise and which will be of tremendous value in the instruction of medical students. The practitioner of the future must be well prepared to meet the emergency of diagnosing and treating tropical diseases which will be of great moment after the war when many thousands of our troops which have been exposed to these diseases return home and be carriers of these diseases.

CIRCULAR

To The Medical Colleges of the United States:

The following Baltimore Medical Schools,

UNIVERSITY OF MARYLAND, BALTIMORE MEDICAL COLLEGE,

COLLEGE OF PHYSICIANS AND SURGEONS, BALTIMORE UNIVERSITY,

WOMAN'S MEDICAL COLLEGE OF BALTIMORE

and the STAFF OF THE JOHNS HOPKINS HOSPITAL, having met for the consideration of reforms urgently needed in the system of medical education hitherto in operation in this country, after a full discussion of this most important subject, have come to the conclusion that it is not expedient, nor indeed practicable for the medical schools of any state to assume alone the responsibility of adopting advanced methods. Yet fully convinced of the pressing need of a change and earnestly desirous to see it consummated, they are unwilling to let matters rest longer as they are without at least an effort on their part to improve them. They have determined, therefore, to issue this appeal to the medical schools of the United States for their co-operation in inaugurating a national advance. Fully aware of previous ineffectual efforts in this direction, they yet realize that times have greatly changed since these efforts were made, and they believe that a repetition of them at this time would have a good prospect of success. The approaching meeting of the American Medical Association, drawing delegates, as it will, from every part of the country, offers a good opportunity for convening those who are interested in the contemplated changes. We therefore invite you to join with us in holding a conference for the full consideration of "Medical Education in this country and Measures for its Improvement," and we request that you will appoint, at your earliest convenience, one or more delegates from your Faculty to represent it at a meeting to be held at Nashville, Tennessee, on the 21st day of May, 1890, at 3 P. M. It is requested that delegates should be instructed, as far as possible, as regards the wishes of their Faculties upon the various measures now proposed in connection with advances in medical instruction, in order that definite results may be arrived at with the least possible delay and trouble. The following subjects are considered as most likely to come up for discussion:

1. Three Years Course of Six-Months Sessions.
2. Graded Curriculum.
3. Written and Oral Examinations.
4. Preliminary Examination in English.
5. Laboratory Instruction in Chemistry, Histology and Pathology.

A. FRIEDENWALD, M.D., President,
EUGENE F. CORDELL, M.D., Secretary,
on behalf of the Baltimore Faculties.

Baltimore, March 20th, 1890.

Please notify Dr. Eugene F. Cordell, No. 2111 Maryland Avenue, Baltimore, Md., of the action you may take regarding this Circular.

College News

University of Colorado
School of Medicine

The first week of May, the chapter of Nu Sigma Nu held its annual lecture. The lecture was given by Dr. Wm. Kerr of the University of California Medical School. His subject was "The Use of the Radioactive Elements in Medicine." He not only explained how these new substances are used to reveal the physiology and metabolism of the body, but also dwelt on the fascinating scope which these elements open up in the field of therapeutics.

The following day a clinic was held in which Dr. Kerr demonstrated the use and advantages in diagnosis of his "Symballophone," a type of stethoscope which combines two diaphragms so that not only can the sound be localized accurately, but the direction of travel of the sound may be ascertained.

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University of Virginia
Department of Medicine

Dr. Alfred Chanutin, professor of biochemistry, has received a research grant of $3,000 from the Nutrition Foundation for continuation of his investigation of fat metabolism in the nephritic rat.

Dr. Carl C. Speidel, professor of anatomy, received a grant of $200 from the American Philosophical Society for cinematographic studies of living tissue.

An additional $5,000 has been received from the Kellogg Foundation for scholarships.

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Baylor University
College of Medicine

Baylor has moved from Dallas to Houston. This move was made possible by a grant of $2,000,000 and 20 acres of land by the M. D. Anderson Foundation and $500,000 by the Houston Chamber of Commerce. One-half of the Anderson grant is to pay for new buildings; the other half for maintenance, especially research and is payable $100,000 a year for ten years. The Chamber of Commerce grant is payable $50,000 a year for ten years. Until such time as it is possible to erect buildings, rented quarters will be occupied.

The clinical teaching will be done in the Jefferson Davis Hospital, the city and county hospital, and the Hermann Hospital, a combined charity and private hospital. All told, about 400 teaching beds will be available in these two hospitals. Other hospitals in Houston have agreed to provide teaching opportunities.

It is probable that there may be a slight delay in the opening of the next session which was set at June 21. The delay will bring this opening about July 10th. Dr. W. H. Moursund will continue as dean of the college.

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Cornell University
Medical College

Promotions: Dr. McKeen Cattell, professor and head of the department of pharmacology; Dr. John M. McLean, professor of clinical surgery (ophthalmology) and head of the department of ophthalmology; Dr. Edward J. Hehre, Dr. John Y. Sugg and Dr. Thomas P. Magill, from assistant professor to associate professor of bacteriology and immunology; Dr. Andrew A. Marchetti, from assistant professor to associate professor of obstetrics and gynecology; Dr. Warner S. Hammond, from instructor to assistant professor of anatomy; Dr. Charles T. Olcott, from instructor to assistant professor of pathology; Dr. Ralph W. Nauss and Dr. Israel Steinberg, from instructor to assistant professor of public health and preventive medicine; Dr. Martin J. Glynn, from instructor to assistant professor of pediatrics; Dr. Edwin J. Doty, from instructor to assistant professor of psy-

chiatry; Dr. Charles Gardner Child, Dr. Edgar C. Person, Dr. Samuel F. Kelley (otolaryngology), Dr. Frederick L. Liebolt (orthopedics) and Dr. Victor F. Marshall (urology) from instructor to assistant professor of clinical surgery; Dr. Joseph V. Sullivan, from instructor to assistant professor of radiology.

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Bowman Gray
School of Medicine

Dr. William Allan, Professor of Medical Genetics, died of bronchopneumonia April 24. Dr. Allan was a graduate of the University of Maryland School of Medicine, 1906. He received the honorary degree of Doctor of Science from Washington and Lee University in 1942, and the degree of Doctor of Laws from the University of North Carolina in 1943. His work in medical genetics in North Carolina led to the establishment of the first department of its kind in the Bowman Gray School of Medicine in 1941. The work was supported during the last two years by a grant of $30,000.00 from the Carnegie Corporation. During the coming year the work will be continued under the direction of Dr. C. Nash Herndon, Assistant Professor of Medical Genetics. The Carnegie Corporation, at a meeting of the Trustees of the Corporation held on May 20, awarded the school a grant of $12,000.00 for the continuation of the work.

Dr. William Dock, Professor of Pathology at Cornell University Medical School, served as visiting Professor of Medicine from May 17 through May 25. This visiting professorship was provided through the generosity of Mr. W. B. McCanless of Roanoke, Virginia.

Dr. William B. Castle, Professor of Medicine of Harvard University School of Medicine, will give the lectures of the second Nathalie Gray Bernard Lectureship on October 26, 27, 28.

The Journal of the Bowman Gray School of Medicine recently made its appearance. It will be published bimonthly by the students of the medical school and original papers will be the work of students concerning study in the school, based on library and experimental research. The first issue was dedicated to Dr. Coy C. Carpenter, dean of the medical school, for his assistance in making the new journal possible. William I. Alsobrook, class of 1944, is the editor.

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The University of Texas
School of Medicine

Dr. Leslie L. Lumsden, former Chief of the Medical Division of the U. S. Public Health Service, has been appointed lecturer in epidemiology in the Department of Preventive Medicine.

Dr. Eric Ogden, associate professor of physiology at the University of California, was a special lecturer during April. He discussed "Renal Factors in Clinical Hypertension."

Herbert Johnstone, Ph.D., associate professor of parasitology, University of California Medical Center, San Francisco, was a guest on his return from the Army Medical College, Washington, D. C. Doctor Johnstone gave a special report on "Recent Advances in Parasitology with Special Reference to War Medicine."

Members of the staff of the University of Texas School of Medicine are cooperating with Texas military groups in offering instruction on protection against war gas.

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Western Reserve University
School of Medicine

Immediately following the annual meeting of the Association of American Medical Colleges, to be held in Cleveland in October, Western Reserve University will celebrate the One Hundredth Anniversary of the School of Medicine, Wednesday, October 27, 1943. The program is as follows:

11:30 A. M.—"Blood Plasma Proteins. Their Production, Function, Substitution and Replacement," George H. Whipple, M.D., Sc.D., LL.D., Professor of Pathology and Dean of School of Medicine and Dentistry, University

of Rochester. Auditorium of Cleveland Medical Library Association.

12:30 P. M.—Buffet luncheon for delegates and guests. Supper room of Cleveland Medical Library Association.

3:00 P. M.—University Convocation. Severance Hall. Address: "The Matrix of Medicine," Alan Gregg, M.D., Director for the Medical Sciences, Rockefeller Foundation.

7:00 P. M.—Dinner at Hotel Statler. Address: "The Crimson Thread," Reginald Fitz, M.D., Lecturer on the History of Medicine, Harvard University Medical School.

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Wayne University
College of Medicine

The construction of the proposed new Wayne University County Hospital was approved by the Ways and Means Committee of the Wayne County Board of Supervisors. A subcommittee was appointed to make a careful study of the matter. The action of the Ways and Means Committee came after a hearing at which about 20 supporters of the plan spoke on the various community services that would be provided by the hospital. Included in the group were John R. Mannix, director of the Michigan Hospital Association, William Norton, of the Children's Fund of Michigan, and Dr. Bruce Douglas, Detroit Commissioner of Health, as well as a number of leading Detroit physicians. Wayne University was represented by President Warren E. Bow, Executive Vice-President David D. Henry, Dean Edgar H. Norris, of the College of Medicine, and Dean Roland T. Lakey, of the College of Pharmacy.

The hospital, to be operated by the College of Medicine, was recently given the approval of the Board of Education when that body sanctioned the general plan for the proposed Detroit Medical Center to be constructed on a 50-acre site on Jefferson Avenue near Burns.

The Theodore A. McGraw Memorial Scholarship was established by a gift from Dr. James D. Bruce. The award, $100 annually, will be awarded to the outstanding junior student.

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Northwestern University
Medical School

Dr. George H. Gardner, associate professor of gynecology, has been appointed assistant dean and Dr. Alexander A. Day has been named acting assistant dean in place of Lieut. Col. Harold A. Davenport, M. C., A. U. S. Dr. Gardner graduated at Johns Hopkins University School of Medicine, Baltimore, in 1921, serving there on the faculty until 1926, when he joined the staff at Northwestern as clinical assistant in gynecology.

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University of Southern California
School of Medicine

Dr. Ernest D. Gardner, instructor in anatomy at Stanford University School of Medicine, has been appointed assistant professor of anatomy and Dr. Arnold Lazarow of the department of anatomy, University of Chicago School of Medicine, has been named research assistant in the department of anatomy.

Dr. Seeley G. Mudd has resigned the deanship and accepted the professorship of experimental medicine. Dr. Burrell O. Raulston has been appointed dean and professor of bacteriology.

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Tufts College
Medical School

Dr. Ralph E. Wheeler, assistant professor of preventive medicine and public health, Vanderbilt University School of Medicine, has been appointed professor of bacteriology.

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University of North Carolina
School of Medicine

Dr. R. T. Shields, of Cheeloo University Medical School, China, has been appointed acting associate professor of pathology to replace Dr. Clark E. Brown now on duty with the Navy.

Woman's Medical College of Pennsylvania

Dr. Margaret D. Craighill, dean, has been commissioned major in the medical corps of the U. S. Army. Dr. Craighill is the first woman physician receiving such an appointment. The Army decided recently to extend this opportunity to women physicians. Dr. Craighill will serve in the division of preventive medicine of the Surgeon General's office in Washington, D. C. Dr. Marion Fay has been appointed acting dean.

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University of Oregon Medical School

Dr. David W. E. Baird, Jr., acting dean, has been appointed dean to succeed Dr. Richard B. Dillehunt, who resigned. Dr. Baird was born in Baker, October 21, 1898. He graduated at the medical school in 1926. He was named assistant clinical professor in medicine in 1932 and in 1935 was named medical director of hospitals and clinics. He was appointed associate dean in 1938. Dr. Dillehunt, who graduated at Rush Medical College in 1910, has been associated with the Oregon faculty since 1912, first as professor of anatomy and assistant dean and later as clinical professor of orthopedic surgery and head of the department. He had been dean since 1920.

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Tulane University of Louisiana School of Medicine

Dr. Granville A. Bennett, associate professor of pathology, Harvard Medical School, has been appointed professor and head of the department of pathology and bacteriology.

A fund of $30,000 was bequeathed to Tulane by Miss Aimee Creagh Denis for the establishment of a biochemistry division in memory of her sister, Dr. Willey L. Denis, formerly professor of biochemistry.

Three grants for work in tropical medicine and cancer research have been made to the Tulane school of medicine. A grant of $10,000 for the making of a colored educational motion picture on amoebic dysentery has been given by the Wyeth pharmaceutical house of Philadelphia. The picture will be used in teaching and training physicians, students and nurses. A gift of $8,500 has been given the department by the G. E. Searle pharmaceutical house of Chicago and an unspecified amount has been given to the department of surgery for the study of cancer by Theodore Brent, president of the Mississippi Delta Shipping company.

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University of Illinois College of Medicine

As announced previously, Dr. D. J. Davis will retire from the deanship September 1, 1943. His successor will be Dr. Raymond B. Allen, now executive dean for all professional colleges of the University of Illinois located in Chicago. Dr. Allen will continue to serve as executive dean as well as being dean of the College of Medicine.

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Boston University School of Medicine

Dr. John G. Downing, assistant professor of dermatology on the Tufts College Medical School faculty, has been appointed professor and head of the department of dermatology on the Boston faculty.

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University of Michigan Medical School

Dr. Carl A. Moyer, assistant professor of surgery, has received the Henry Russel Award for outstanding work on the physiology of breathing and the effect of various drugs on the respiratory processes.

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College of Medical Evangelists

Dr. Newton G. Evans, professor and head of the department of pathology and a member of the board of trustees of the college, was elected dean to succeed the late Dr. Edward H. Risley. Dr. Evans,

who graduated at Cornell University Medical College, New York, in 1900, has been head of the department of pathology for thirteen years. He is also chief pathologist of the Los Angeles County Hospital.

* *

University of Kansas
School of Medicine

The Kansas Medical Society and the School of Medicine opened a postgraduate course in tropical medicine in Emporia, May 22-23, the first in a series to be given in cities throughout the state. The second was held in Wichita, May 29-30, and the third in Salina, June 12-13; courses are planned for Parsons, Kansas City and Topeka. The instructors include Dr. Harry L. Douglas, assistant professor of medicine, University of Kansas School of Medicine, Kansas City; Herbert B. Hungerford, Ph.D., professor of entomology of the University of Kansas, Lawrence, and Mary E. Larson, A.M., assistant professor of zoology of the University of Kansas.

* * *

University of Oregon
Medical School

The School of Medicine has reinstituted student externships in the curriculum of fourth year students. Hospitals where the training is being given include St. Vincent's, Good Samaritan, Emanuel, Providence, Coffey Memorial and Hahnemann, all of Portland.

General News

Southwestern Medical Foundation Medical School

The Southwestern Medical Foundation has announced that it will open a new medical school in Dallas. According to press reports, the first session will open on or about June 21st for all four classes. It is stated that many of the preclinical faculty of Baylor University College of Medicine will join the faculty of the new school and that all members of the clinical faculty will remain. The Parkland—city and county hospital—will furnish clinical facilities. Dr. Donald Slaughter, professor of pharmacology in the College of Medicine of the University of Vermont, will serve as acting dean and professor and head of the department of pharmacology and physiology. The press also reports that Dr. Irving S. McQuarrie, professor of pediatrics, has accepted the deanship and will head the department of pediatrics. Temporary buildings are to be erected near the Parkland Hospital.

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National Foundation for Infantile Paralysis

The National Foundation for Infantile Paralysis and the University of Michigan have joined in a long-range program for the training of doctors, public health workers and laboratory technicians to study infantile paralysis and other virus diseases, it was announced today in a joint statement by Basil O'Connor, president of the Foundation, and Dr. Alexander G. Ruthven, president of the University.

This program, which has been developing for three years, was expanded to its full scope about June 1 when the University opened its new three story building for its School of Public Health at Ann Arbor, Mich. The new structure will house a unit devoted entirely to work in virus diseases, particularly infantile paralysis. The virologists who will be trained under the program will be prepared to attack the whole realm of virus diseases, including not only infantile paralysis but also influenza, atypical pneumonias, St. Louis and equine encephalitis, measles, chicken-pox, smallpox and mumps.

To aid in the necessary planning and execution of such a project, the National Foundation has made a three-year grant, totaling $120,000, to the University. This is in addition to three previous grants, totaling $110,000, made in the past three years. Last month a five-year grant, totaling $150,000, was made to Yale University to permit it to reorganize its work on infantile paralysis and establish the Yale Poliomyelitis Study Unit. Last summer a five-year grant, totaling $300,000, was made to The Johns Hopkins University, at Baltimore, to establish and conduct the Center for the Study of Infantile Paralysis and Related Virus Diseases.

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American Foundation for Tropical Medicine, Inc.

The medical advisory committee of The American Foundation for Tropical Medicine, Inc., authorized grants to six North American medical schools totaling $26,100 during the first quarter of 1943. These grants, made possible by contributions and pledges for the current year of $60,100 by nineteen American corporations, are being used to strengthen teaching or research programs in tropical medicine and parasitology at the various schools. The approved projects were selected by the medical committee among a number of applications.

Medical schools to receive aid were: New York University, College of Medicine; Tufts College Medical School; Tulane University School of Medicine; University of Manitoba Faculty of Medicine; University of Nebraska College of Medicine and Yale University School of Medicine.

Companies which have made contributions or formal pledges of support include: Abbott Laboratories; American Cyanamid Company; Ciba Pharmaceutical Products Corp.; Firestone Plantations Company; General Foods Corporation; Hoffmann-LaRoche, Inc.; The Lambert Company; Lederle Laboratories; Eli Lilly and Company; Merck & Co., Inc.; National Carbon Company; Parke Davis and Company; E. R. Squibb & Sons; United Fruit Company; William R. Warner & Company; Winthrop Chemical Company; Winthrop Products, Inc.; and John Wyeth & Brother.

The Foundation's program calls for the collection and disbursement of $100,000 among medical schools and scientific journals and for special projects which fall within the scope of the Foundation's activities.

The purposes for which the funds granted are being utilized are as follows:

Manitoba: Traveling fellowship for professor of parasitology and tropical diseases.

New York University: Salary aid for full time instructor in tropical medicine and parasitology.

Nebraska: For full time technical assistant to assist teaching in student laboratories and staff research.

Tufts: To employ clinical teaching fellow in tropical medicine.

Tulane: Budgetary needs of Department of Tropical Medicine which has trained 41 physicians from Central and South American countries, from Africa and from Asia since 1940.

Yale: To supplement salaries of teachers and laboratory assistants in order to expand tropical medicine teaching.

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Brigadier General Norman T. Kirk Nominated for Surgeon General

The nomination of Norman T. Kirk to be Surgeon General of the Army with the rank of major general has been sent to the Senate by the President. General Kirk, who is 55 years old, was until recently commanding general of the Percy L. Jones General Hospital in Battle Creek, Mich. He was formerly chief of the surgical service at the Army Medical Center at the Walter Reed General Hospital, Washington, D. C. He entered the army medical corps in 1913 with the rank of first lieutenant. He is to succeed Major Gen. James C. Magee, whose term expires on June 1.

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Tennessee Basic Science Board

A law was enacted recently in Tennessee establishing a Basic Science Board. The following officers were appointed: President, Dr. W. S. Leathers, Vanderbilt University; vice-president, Dr. Edw. L. Turner, Meharry Medical College; secretary-treasurer, Dr. O. W. Hyman, University of Tennessee, College of Medicine.

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Michael Reese Hospital Program of Medical Teaching

The Michael Reese Hospital, Chicago, has inaugurated a program of medical teaching which is to be developed first on an intramural basis but which will gradually be merged into postgraduate teaching available to the medical profession at large. It is hoped that the program will be sufficiently advanced by the end of the war to help meet the demand for refresher courses for physicians now in the armed forces. The part time and full time staffs of the clinical departments of the hospital, and the full time staffs of the Research Institute and of the clinical laboratories will all contribute to the teaching faculty. In line with the introduction of the new teaching program and as a part of the general reorganization at the hospital Dr. Herman Smith, who has been the general superintendent of the hospital, now becomes the executive director and Dr. Samuel Soskin, head of the department of metabolism and endocrinology at Michael Reese for the past fourteen years, has been appointed medical director and dean of the new teaching and research faculty.

Book News

The Physiological Basis of Medical Practice:
A University of Toronto Text in Applied Physiology

By Charles H. Best, M.D., Professor and Head of the Department of Physiology and Norman B. Taylor, M.D., Professor of Physiology, University of Toronto. Ed. 3. The Williams & Wilkins Company, Baltimore. 1943. Price, $10.

Many alterations, additions and deletions have been made to bring this very popular text up to date. Many chapters have been extensively revised and several sections have been rewritten. This is probably the largest textbook in existence—about 1,900 pages, 100 of which are references. The physiologist and the researcher doubtless will find so many references valuable but the medical student will not. During the war, when all instruction will be carried on under "forced draft," the student will have less time than ever before to use so large a text. Of course, the book is good and under ordinary conditions it has met with much favor among teachers of physiology.

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Convulsive Seizures:
How to Deal with Them

By Tracy J. Putnam, M.D., Professor of Neurology and Neurosurgery, College of Physicians and Surgeons, Columbia University. J. B. Lippincott Company, Philadelphia. 1943. Price, $2.

Not a technical book. Written to bring hope to patients and their relatives who are beset by many problems. This book gives the answers which the author is well qualified to present.

The book has still a further purpose. Humanitarian and economic motives should impel an improvement of the facilities for caring for the large number of patients; a reformation of the conventional attitudes towards convulsions; a reconsideration of the legal aspects; and a greater measure of support for scientific investigation of the nature and treatment of the disorder.

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Medicolegal Blood Group Determination:
Theory; Technic; Practice

By David Harley, M.D., Laboratories of the Inoculation Department, St. Mary's Hospital, London. Grune & Stratton, Inc., New York. 1943.

The title of this book tells the story.

Essentials of Syphilology

By Rudolph H. Kampmeier, M.D., Associate Professor of Medicine, Vanderbilt University School of Medicine. J. B. Lippincott Company, Philadelphia. 1943. Price, $5.

Since syphilis is being stressed today in the teaching of medical students, this book should fill a real need as a text and guide. It is well illustrated and of small size and not too high priced. Every student should own a copy.

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Atlas of Obstetric Teaching

By Paul Titus, M.D., Pittsburgh. The C. V. Mosby Company, St. Louis. 1943. Price, $7.

Presents in pictorial form, with short titles, modern obstetric technic now accepted as standard. It also includes a section on the technic of sterility studies. Several hundred beautiful, clear illustrations supplement the text well and will serve to teach obstetrics by visual aids. It will also supplement any standard textbook on obstetrics. The author's long and wide experience gives assurance of excellence for this undertaking.

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First Aid:
Surgical and Medical

By Warren H. Cole, M.D., Professor of Surgery, University of Illinois College of Medicine, and Lt. Col. Charles B. Puestow, M. C. Army U. S. Ed. 2. D. Appleton-Century Company, New York. 1943. Price, $3.

A good teaching text for medical students to prepare them for the armed services as well as for civil practice. Even the layman will find this text valuable. Everybody should have some good knowledge of first aid. Medically accurate and detailing the latest approved procedures, it is an authoritative guide in administering first aid in injuries resulting from war as well as those resulting from industrial, travel or other peace-time accidents. Separate chapters are devoted to "medical emergencies," including first aid measures in illness, poisoning, etc., and to "care of the feet."

Subjects such as wounds, burns, hemorrhage and shock are discussed in considerable detail. When dealing with emergencies of the military type the authors have stressed procedures being adopted by the American Armed Forces in the present war. Bandaging, wound cleansing, wound dressing, splinting, and transportation of the injured are discussed fully.

Aids to Surgical Anatomy

By J. S. Baxter, M.B., Lecturer on Anatomy, Bristol University. Ed. 2. The Williams & Wilkins Company, Baltimore. Price, $1.50.

A good book and a handy one for every medical student to own. It is filled with useful information and its small size permits carrying in the pocket. Small aids to study are best for students.

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War Injuries of the Chest

Edited by H. Morriston Davies and Robert Coope, London and Liverpool. Published by Livingstone, Edinburgh. Imported by The Peter Reilly Co., Philadelphia. 1943. Price, $2.25.

A good little book, written by nine contributors and covering the field indicated in the title. Well illustrated; good printing job.

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Essentials of Industrial Health

By C. O. Sappington, M.D., Consulting Industrial Hygienist. J. B. Lippincott Company, Philadelphia. 1943. Price, $6.50.

Medical schools are emphasizing industrial health in the curriculum. This book closely follows a recently proposed course for undergraduate medical students. It is timely and authoritative.

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Human Neuroanatomy

By Oliver S. Strong, formerly Professor of Neurology and Neurohistology, and Adolph Elwyn, Associate Professor of Neuroanatomy, College of Physicians and Surgeons, Columbia University. The Williams & Wilkins Company, Baltimore. 1943. Price, $6.

The book links structure and function into a dynamic pattern without sacrificing anatomical detail, knowledge of which is essential to intelligent diagnosis and localization of neural disturbances. The first part takes up such preliminaries as general organization of the nervous system, its embryology and histological structure, the organization and segmental distribution of the peripheral nerve elements. The second and larger part is devoted to the architectonics of the central nervous system and constitutes an applied neuroanatomy characterized by many fine photographs (both gross and microscopic) of the human brain and spinal cord, by a great wealth of anatomical detail, and by discussion of the structural mechanisms in the light of clinical experience.

The illustrations are done very well and really illustrate. The bibliography is well chosen—and in one place, at the end of the text. The double column arrangement of the text pages makes easier reading.

Physiological Principles in Treatment

By Sir Walter Langdon-Brown, M.D., and Reginald Hilton, M.D., London. Ed. 8. The Williams & Wilkins Company, Baltimore. 1943. Price, $3.50.

Thirty-four years is a long life for a book of this character. In fact, it first appeared before the medical profession was habituated to linking physiology with treatment. It still is a valuable book, especially for the student who does not always know the "why" of treatment because he is not told. Some medical schools are now correlating physiology with clinical instruction—which should be the rule rather than the exception. This book meets a need in that direction. Medical students will do well to have one handy and to use it always in the third and fourth years. It is important to know why certain treatment is used and especially to know what treatment disturbed physiology demands to be brought back to normal.

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Diagnosis of Uterine Cancer by the Vaginal Smear

By George N. Papanicolaou, M.D., Department of Anatomy, and Herbert F. Traut, M.D., Department of Obstetrics and Gynecology, Cornell University Medical College. The Commonwealth Fund, New York. 1943. Price, $5.

Describes a new, simple and inexpensive aid in the diagnosis of cancer of the uterus. It is based on the examination of 3,014 women and was found to be highly reliable in disclosing the presence of previously unsuspected cancer. The colored plates made from actual specimens are beautiful and accurate. They should prove to be very helpful in making these studies of vaginal smears.

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A Handbook of Medical Library Practice

Compiled by a committee of the Medical Library Association. Janet Doe, Editor, Librarian. New York Academy of Medicine. American Library Association, Chicago. 1943. Price, $5.

This is the first comprehensive treatise on practice and operations in the medical library field. The book is both a manual of procedure and a reservoir of useful data. "It is an attempt to imitate ontogeny by recapitulating in one volume the experience of the race of medical librarians," says the Introduction; it acquaints the general librarian with the special problems of the medical library. Accompanying the chapters on procedures are appendices which have brought together extensive bibliographies, lists, and guides.

An annotated list of reference books includes 625 items, carefully described, and provides the blueprint for building the foun-

dation of any medical library that is to attempt reference service. This important guide covers 165 pages and alone is a significant contribution to medical librarianship. There are also lists of medical libraries here and abroad; the principal expansions of medical classification schemes; a guide to bibliographies, bibliographic collections, and histories useful in historical medical collections.

The principal chapters cover medical library administration, selection and ordering of books and periodicals, cataloging, subject headings, classification, pamphlets, pictures, maps, microfilms, reference work, rare books and the history of medicine.

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The Therapy of the Neuroses and Psychoses:
A Socio-Psycho-Biologic Analysis and Resynthesis

By Samuel H. Kraines, M.D., Associate in Psychiatry, University of Illinois College of Medicine. Ed. 2. Lea & Febiger, Philadelphia. 1943. Price, $5.50.

In this new edition, the text has been expanded to include new chapters on the psychoses, shock therapies, psychiatric interview techniques and neuropsychiatry incident to the war. The primary purpose of the book is to provide practical understanding of psychiatric states and concrete suggestions on treatment. For the medical student, specific and interpretive advice has been given on the methods of interviewing the psychiatric patient. The psychoses have been analyzed and treatment prescribed in terms of their physio- and psychopathology. The indications and contraindications for the use of insulin, metrazol and electric shock therapy have been included with the techniques for their application.

There is a timely and informative chapter on neuropsychiatric states induced by war, including a detailed discussion of social psychiatry, selective service problems, psychiatric states in training centers and "nervous breakdowns" in combat. The main body of the work deals with the principles that underlie the formation, development and treatment of the neuroses. Psychosomatic diseases, such as spastic colitis, peptic ulcer, essential hypertension and many others are discussed.

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Managing Your Mind:
You Can Change Human Nature

By Samuel H. Kraines, Associate in Psychiatry, University of Illinois College of Medicine and E. S. Thetford. The Macmillan Company, New York. 1943. Price, $2.75.

This book explains to what extent man can control and direct his actions, thoughts and feelings. Many illustrative stories are cited. The language is nontechnical, hence easily understood by any reader.

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An Atlas of the Basal Ganglia, Brain Stem and Spinal Cord

By Henry Alsop Riley, M.D., Professor of Neurology and Neuroanatomy. The Williams & Wilkins Company, Baltimore. 1943. Price, $13.50.

This atlas, many years in the making, is based on a long teaching experience. Large sized photographs are used; not only transverse sections are shown but horizontal and sagittal sections as well. The photographs consist of low power orientation and high power regional reproductions. All told, there are 264 photographs of actual sections. Symbols are placed directly on the structure. The terminology permits a uniform and usable system of symbols. The terms are, in most cases, self explanatory and self descriptive. The text part supplies in convenient form a great amount of information on the character, origin, destination and general significance of the structure under consideration. A fine index and a list of selected references completes the book. Author and publisher must be complimented for having produced a very fine aid to the study of a difficult and trying subject—neuroanatomy—but none more important in its relation to medical practice today.

A TEXT-BOOK OF

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